Earth Day, April 22, 2005, marks the availability of a draft Utah Wildlife Conservation Strategy for public review & comment.

Comments Due by Close of Business (COB) May 6, 2005.

April 22, 2005

Dear Wildlife Enthusiast,

For the past two plus years, several conservation partners in Utah have been guiding the Utah Division of Wildlife Resources in its development of a 10-year Comprehensive Wildlife Conservation Strategy (Strategy) for species and habitats of greatest conservation need in our state. This effort is a requirement for the continued receipt of State Wildlife Grant funds through the U.S. Fish and Wildlife Service that are appropriated annually by Congress and disbursed at the state level for conserving species and spaces in peril.

Thus, we cordially invite you to review and, if you wish, comment on this draft Utah Strategy. All comments received prior 5 p.m. on Friday, May 6th will be considered. For your ease of response, we ask that you please send your comments to a *Strategy Comment e-mail address:* <StrategyComment@utah.gov>. Please e-mail your comments inside the body of the e-mail or, if preferred, as an attached word processing file.

Please specify the chapter and page number for every comment made, and list your comments in order of the Chapters as they are presented. Should you find gaps, inaccuracies or have other suggestions that you feel we should potentially consider for the final version's release, please share them as well. All comments received will be considered; the Strategy will be revised to reflect the public's values and concerns.

The Strategy will be presented at five wildlife Regional Advisory Council meetings held throughout the state in May, 2005 You are welcome to attend the session held in your region to make personal comment on this action item. On June 9, 2005, the Utah Wildlife Board will meet to accept public comment on the draft Strategy and take action on the Strategy's acceptance.

It is the intent of the Utah Division of Wildlife Resources to submit the final published version of Utah's Comprehensive Wildlife Conservation Strategy so that the U.S. Department of Interior, Fish and Wildlife Service will receive it no later than July 1, 2005.

Thank you for your interest in and support of fish and wildlife conservation in the great State of Utah!

Sincerely,

Mr. Dana E. Dolsen, M.Sc.
Strategy Coordinator
Utah Division of Wildlife Resources

UTAH'S COMPREHENSIVE WILDLIFE CONSERVATION STRATEGY (CWCS)

Utah Division of Wildlife Resources **DRAFT** **04/22/2005**

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CHAPTER 1 . INTRODUCTION AND PURPOSE

PURPOSE OF THE CWCS

Populations of many species of wildlife have declined over the past 30 years. These declines are due to a variety of man-made and natural factors. To date, limited conservation efforts have been directed towards these issues, in large part due to the lack of information regarding the ecology of the species involved. Unless adequate measures are taken to recover and conserve species populations and habitats, some of these species may become federally listed in the future. The purpose of the CWCS is to prevent the need to further list any species.

OVERVIEW OF UTAH

Five physiographic regions, defined by topography, geologic structure, and elevation occur within Utah: Basin and Range Region (western one-third of state); Mojave Desert (extreme southwest); Utah Mountains (Uinta and Wasatch mountain ranges); Colorado Plateau (southeastern portion of state); and Wyoming Basins (northeast portion). Utah's climate varies with elevation, ranging from semi-arid desert to montane. Average annual precipitation ranges from less than 8 inches to more than 50 inches of water per year. Most precipitation falls in the mountainous regions of the state while more than two-thirds of the state receives less than 12 inches of total precipitation per year. Drought, as measured by the Palmer Drought Severity Index, has differed substantially over the last 25 years. In general, the period from 1977-86 did not have drought conditions while the next 15 plus years, 1987-2003, have been characterized by long-term drought.

The complexities of Utah's geology and climate result in biologically diverse habitats. Important habitat types in Utah include lowland riparian, wetland, mountain riparian, shrubsteppe, mountain shrub, lotic, wet meadows, grasslands, lentic, Aspen forests, and desert scrub. Riparian areas are the richest habitat type in terms of biodiversity and wildlife abundance. Aspen communities provide a number of ecosystem values including watershed protection and improved water yields, and are second to riparian areas in wildlife species diversity and abundance.

The state of Utah is renowned for the biodiversity associated with the Great Salt Lake Ecosystem, which is a high priority landscape for the Utah Division of Wildlife Resources (UDWR). The Great Salt Lake is a desert oasis for migrating birds and some species that visit the lake are salt lake specialists that rely upon the unique biota in and around the lake. The water elevation in this terminal basin lake is ever changing along with the habitats and has fluctuated from 4192 to 4212 feet above sea level since 1850 when record keeping was initiated. Indeed, this constant change ensures the long-term survival of the bird species that frequent the lake and the changing habitats. The importance of this natural mechanism cannot be overstated.

Utah's habitats support diverse wildlife communities and approximately 700 species of vertebrate wildlife and thousands of species of invertebrates have been known to occur in Utah within historical times - or since the mid-1800s. This includes species that are extinct, extirpated, accidental, and introduced. Almost 250 species of birds alone utilize habitats within the Great Salt Lake Ecosystem. By law, wildlife in Utah are defined as crustaceans, mollusks,

and vertebrate animals living in nature (Utah Code Annotated 23-13-2(49), Appendix A). All other members of the animal kingdom are not jurisdictional wildlife in Utah and therefore cannot be legally addressed by the agency in this strategy, i.e., the legislature has not given the agency authority to manage species no mentioned in law. Few crustacean species are found in Utah and these are of limited distribution. The most prominent of the crustaceans are the brine shrimp found only in the Great Salt Lake; these are managed by UDWR in a special project office. Because there are limited crustaceans in Utah and because UDWR does not anticipate that they will be of conservational concern over the next decade, they are not addressed further by this strategy.

Utah's CWCS

In Utah, the wildlife community has changed dramatically in the last 150 years, primarily due to the introduction of non-native species (e.g., plants, livestock, DWR introductions) and changes in land management practices, such as changes associated with agriculture, mining, and urban development. In addition, conservation efforts for declining species have also been limited by the lack of adequate funding. The number of vertebrate species identified by DWR as wildlife "species of concern" increased from 64 in 1976 to 90 in 1998 and decreased to 74 in 2003 (due to new criteria). Changing land management practices without regard to the effects on wildlife pose a serious threat to Utah's species. Most of Utah's rangeland vegetation has significantly changed in quantity and quality since European settlement of the state due to wildfire control and livestock grazing (bunch grasses have been replaced by desert shrubs and juniper), and introduced alien herbaceous species (e.g., Russian thistle and cheatgrass). The implication of more than six thousand acres of sagebrush that were documented in 2003 as either dead or dying in eastern, central and southern Utah, has serious consequences and challenges for maintaining rangeland health and habitat for sagebrush obligate species. Similarly, though aspen forests support abundant wildlife and protect watersheds, fire control and excessive browsing of young aspen have resulted in many acres of aspen being displaced by conifer forests, which transpire more water and have sparse understories.

With more than 1,000 species on the Federal Threatened and Endangered Species List, the U.S. clearly needs a robust program to address problems early on to avoid costly, intensive measures for the recovery of these species. The amount of federal and state dollars needed to protect and restore federally listed species is far greater than would have been required to prevent their decline in the first place. Endangered and threatened wildlife are identified and managed under the U.S. Endangered Species Act, which sets specific guidelines for listing and management and is administered by the U.S. Fish and Wildlife Service (USFWS). Utah has 21 federally listed wildlife species (5 mammals, 5 birds, 8 fish, 1 reptile and 2 invertebrates). In addition, there are another 6 species in Utah that are either proposed for T & E federal listing or are candidate species (3 vertebrates and 3 invertebrates). The UDWR participates in most recovery efforts as a cooperator with the USFWS. Historically, recovery programs have focused on a single species but more recently have addressed multiple species and critical habitats.

United States laws and policies place the primary responsibility for implementing wildlife management programs on the States, but effective implementation depends on Congressional monetary support. State wildlife agencies are the backbone of our nation's wildlife conservation.

For decades, federal funding to the states has focused primarily on – and has been largely responsible for – enormously successful programs ensuring conservation and sustainable use of important wildlife species hunted or fished by millions of sportsmen across America. However, there has been a serious gap in federal funding for many species not addressed by hunting and fishing fees and excise taxes.

State Wildlife Grants (SWG) are relatively new and were created under a federal program that was designed to fill this gap by providing funding to the states to prevent species from becoming endangered. This marks the first time the federal government has provided substantial funding to address this problem. SWG were established as part of the Conservation Trust Fund. Currently SWG are funded based on an annual congressional appropriation. According to the SWG program, each State, Territory and the District of Columbia must complete a Comprehensive Wildlife Conservation Strategy (CWCS) by October 1, 2005 to be eligible for funding. The purpose of the CWCS is to prevent the need to federally list any species. The U.S. Fish and Wildlife Service approves CWCSs and administers the grants.

REQUIRED ELEMENTS OF CWCS

Congress identified eight required elements to be addressed in these wildlife conservation plans (see below). Further, the plan must identify and be focused on the "species in greatest need of conservation," yet address the "full array of wildlife" and wildlife-related issues. They must provide and make use of:

(1) Information on the distribution and abundance of species of wildlife, including low and declining populations, as the State fish and wildlife agency deems appropriate, that are indicative of the diversity and health of the State's wildlife;

(2) Descriptions of locations and relative condition of key habitats and community types essential to conservation of species identified in (1);

(3) Descriptions of problems which may adversely affect species identified in (1) or their habitats, and priority research and survey efforts needed to identify factors which may assist in restoration and improved conservation of these species and habitats;

(4) Descriptions of conservation actions proposed to conserve the identified species and habitats and priorities for implementing such actions;

(5) Proposed plans for monitoring species identified in (1) and their habitats, for monitoring the effectiveness of the conservation actions proposed in (4), and for adapting these conservation actions to respond appropriately to new information or changing conditions;

(6) Descriptions of procedures to review the plan at intervals not to exceed ten years; and,

(7) Plans for coordinating the development, implementation, review, and revision of the plan with Federal, State, and local agencies and Indian tribes that manage significant land and

water areas within the State or administer programs that significantly affect the conservation of identified species and habitats.

(8) Congress also affirmed through this legislation, that broad public participation is an essential element of developing and implementing these plans, the projects that are carried out while these plans are developed, and the Species in Greatest Need of Conservation that Congress has indicated such programs and projects are intended to emphasize.

The CWCS process is an opportunity for State wildlife agencies to provide effective and visionary leadership in conservation. The Strategy can identify the measures that will be used, the desired results, and the threats and needs that remain with regard to wildlife and wildlife habitat. It is also an opportunity to address broader issues and programs, including environmental and wildlife-related education, outdoor recreation, and wildlife-related law enforcement. These other areas can enhance wildlife conservation efforts and funding, and public support for wildlife conservation can be increased by involving partners that share these interests (Chapters 2 and 3).

STRUCTURE OF THE CWCS

The document that follows is Utah's CWCS and was prepared emphasizing three guiding principles:

1. Use a public-private partnership to develop the strategy, which has been accomplished using our partners oversight group.
2. Use the best science and knowledge available.
3. Use the strategy as a foundation for conservation efforts and focus energy on implementing actions contained in the strategy.

The remainder of the CWCS addresses the eight required elements of the strategy using the species/habitat approach (Table 1.1). Chapter 2 presents the approach for including the public, our stakeholders and partners [Element 8]. Chapter 3 deals with the Partners' authorities and missions and coordinating their involvement with the CWCS [Element 7].

Chapter 4 outlines the State of Utah's efforts to merge the CWCS with other strategic plans, and lists other federal, state, and regional plans to which the CWCS will be linked. Chapter 5 outlines the approach used to identify species in greatest need of conservation (Element 1) while Chapter 6 provides information about species abundance and distribution (Element 1) and identifies threats and proposed conservation actions for those species (Element 3). Priority habitats and their condition are identified in Chapter 7 (Element 2) and Chapter 8 describes problems, threats, and conservation actions for those habitats (Elements 3 and 4). Chapter 9 discusses plans for monitoring conservation success through identifying measures and then tracking our effectiveness and ability to adapt to changing conditions (Element 5). Chapter 10 describes an implementation plan and additional efforts in coordinating actions (Element 7). Finally, Chapter 11 describes the proposed process for a regular Plan Review (e.g., 5 years, 10 years) (Element 6).

Table 1.1. Locations of Required Elements in the CWCS

Required Element	Chapters
1 – Distribution and abundance of wildlife species	4,5,6
2 – Locations and condition of key habitats	7
3 – Problems that may adversely affect species and habitats	4,5,6,8
4 – Conservation actions that may conserve species and habitats	6,8,9
5 – Proposed plans for monitoring species and habitats	9
6 – Procedures to review the CWCS	11
7 – Coordinating with other land management agencies	3
8 – Public participation	2

CHAPTER 2 . PARTNER SOLICITATION AND PUBLIC INVOLVEMENT

(8th Element – partial[1])

PARTNER SOLICITATION

The mission of the Utah Division of Wildlife Resources (UDWR) is to insure the future of wildlife for its intrinsic, scientific, educational and recreational values. This mission is accomplished through the protection, propagation, management, and conservation of wildlife throughout the state. Accomplishing this goal, in light of growing environmental pressures and impacts associated with habitat degradation and loss, requires broad public support for, and involvement in, conservation efforts.

UDWR initiated the planning effort for the Comprehensive Wildlife Conservation Strategy (CWCS) by soliciting active participation from government and non-governmental organizations in developing and implementing the plan. The Strategy Coordinator and various associated DWR staff have scheduled CWCS presentations, discussions, and events with multiple stakeholders, including our Strategy Partners Group members across the state (see Appendix A for organizations and agencies broached for partnership). In 2004, sixteen such activities occurred and in 2005, so far eighteen such activities have occurred with another half dozen scheduled by the end of May 2005. The intent is to continue these outreach activities throughout the year in order to increase participation and awareness and stimulate implementation.

Conservation partners and stakeholders include such entities as federal and state agencies, Indian Nations, nongovernmental groups, local governments, significant national interest groups with state-based chapters, state-specific interest groups as well as locally based groups, professional associations and societies, peripheral cooperators, commercial businesses with vested interests and corporations. These partners have been instrumental in the progress of the CWCS by providing key information to be included in the plan and through review of the plan, insuring that the interests of various stakeholders are addressed. In addition, these partners will strongly be encouraged to incorporate the CWCS into their own management and conservation plans and to aid the UDWR in local implementation throughout the state. Thus, the development and implementation of Utah's CWCS has been, and will continue to be, a collaborative and comprehensive effort.

Although no public announcement or recruitment of formal public input beyond the Sensitive Species Rule and the Regional Advisory Council (RAC) and Wildlife Board processes is mandated by law (see below), a variety of methods or techniques were applied to engage the public and other stakeholders in developing the CWCS. During late Fall 2004 and Winter 2005, the UDWR visited with all of the major stakeholders, presenting the rationale, process and current status of efforts to develop and finalize the CWCS in time for Wildlife Board approval no later than early Summer of 2005. UDWR announced, by way of invitations issued to all of its stakeholders and the general public, the opportunity to review a Strategy draft in Spring 2005. In essence, an invitation has been made for stakeholders to become involved in the review and completion of the final version of the CWCS and then assist the UDWR and its major partners in implementing the Strategy over the next 10 years. Recommendations and policy regarding management and conservation of wildlife species will be based on species needs as defined in

[1] The fulfillment of this partial element may be found in Chapter 4, which lists the full array of conservation plans entered into involving nongovernmental entities, as well as coordinating governments.

the CWCS. The public is welcome to comment on such recommendations and policy, and thus help implement the Strategy.

LEGISLATED PUBLIC PARTICIPATION

In addition to partnerships solicited specifically for the CWCS, the UDWR is subject to two legislated processes that encourage public participation in decisions regarding wildlife and habitat, including the development and approval of the CWCS. These are:

1) Regional Advisory Councils and Utah Wildlife Board
2) Utah's Designation of State Species of Concern

These processes are ongoing and will continually enable citizens the opportunity to maintain their involvement over time throughout the 10-year duration of the initial CWCS and subsequent revisions. Other non-legislated means for public involvement exist and have also been pursued and implemented (Appendix A).

Regional Advisory Councils and Utah Wildlife Board Processes

In the early 1990s, the policy governance process for directing and guiding wildlife management in Utah was dramatically overhauled, and the organization and administration of the UDWR were restructured. In each of the five administrative regions within the state, a Regional Advisory Council (RAC) was established to recommend actions and advise the state Wildlife Board in wildlife and habitat management decisions (R657-39), including the development and implementation of the CWCS. The fifteen members of each RAC include either one or two representatives of agriculture, sportsman, nonconsumptive wildlife, locally elected public officials, the U.S. Forest Service, the Bureau of Land Management, and Indian Tribes (where appropriate). Membership also includes two members of the public at large who represent the interests of the region.

RAC meetings are open to the public, and the councils encourage citizen attendance through public notice of the agenda, date, time and location of each meeting, at the regional division office and through the local media. The UDWR encourages public participation and citizens are welcome to address the council with their concerns and their testimonies are recorded in the minutes of the meeting. Regarding decisions about wildlife and habitat, the RACs gather and compile information from UDWR staff, the public, and government agencies before making recommendations to the Wildlife Board.

The State Wildlife Board (Board) establishes policies designed to accomplish the purposes and fulfill the intent of all laws pertaining to wildlife and the preservation, protection, conservation, perpetuation, introduction, and management of wildlife in Utah. The Board is composed of seven members, appointed by the governor, that have expertise or experience in at least one of the following: 1) wildlife management or biology; 2) habitat management, including range or aquatic; 3) business, including knowledge or private land issues; or 4) economics, including knowledge of recreational wildlife uses. In developing wildlife policy, the Board considers the recommendations of each RAC and UDWR personnel but may reject recommendations with written explanation. Similar to RACs, the Wildlife Board has open meetings where public comment is welcome prior to the finalization of any policy decisions.

Utah's CWCS will be directed through these channels as it is developed. Draft versions of the document will be open to review by Partners, the public, stakeholders, and the USFWS via

the Internet. RACs will also review the plan and hear comments from the public, before making recommendations to the Board. The Board, again, will request and review public comments before final approval. Based on receiving endorsement of the CWCS via the RAC recommendations and the Board's approval no later than June 9, 2005, it is our intent to submit this draft version of the CWCS to the USFWS NAAT by June 30, 2005, for formal review, critique and potential acceptance.

Utah's designation of State Species of Concern process

The Wildlife Species of Concern and Habitat Designation Advisory Committee was established in 2001. The Committee is composed of the Executive Director of the Department of Natural Resources (DNR) and Directors of three Divisions: Wildlife Resources; Oil, Gas and Mining; and Water Resources. The purpose of the Committee is to review all proposed designations or re-designations of each wildlife species of concern, or those species for which there is credible scientific evidence to substantiate a threat to continued population viability. Species accepted by this committee as state species of concern are automatically included as Tier II species in the CWCS. All Federal Threatened and Endangered species are considered state sensitive as Tier I species in the CWCS.

The Committee encourages public participation in this process in that any citizen is welcome to petition for a species' inclusion, request extensions to review a proposed Committee action, or request to make an oral presentation before the Committee. Though public concerns and petitions are considered, designation of a species as one of concern will only occur if sufficient scientific evidence warrants that action. The DNR Executive Director then makes a formal written recommendation to the Board for final approval as a State Species of Concern.

OTHER CITIZEN PARTICIPATION OPPORTUNITIES

As the UDWR moves into the first decade of its CWCS, efforts will be made to engage citizens, stakeholders and potentially affected interests in enhancing their awareness, interest and potential participation in the implementation of conservation actions. The UDWR hopes to foster communities of practice, in which members engage in conservation, land stewardship, and environmental ethic. Although there is no requirement for the CWCS to specifically address education and outreach activities, the UDWR recognizes the importance of these efforts and the objectives below have been generated to address this need.

a. *Create & inform communities of practice.*-- Distribute information on and provide expertise in enhancing protected wildlife populations and restoring their habitats;
b. *Engage and sustain communities of practice.*-- Stimulate, develop, acknowledge and recognize the implementation of ecosystem stewardship statewide, especially for species and habitats of conservation need.
c. *Educate and invigorate partners through dialog with experts.*-- Regularly communicate with partners about UDWR wildlife and habitat management plans and their application in the field.
d. *Design and offer interactive collaborative learning opportunities.*-- Develop and regularly offer hands-on and/or interactive learning opportunities, events and activities to enable a personal experience; and

e. *Extend the invitation to actively participate.*-- Provide information through personal and nonpersonal media and promote public participation in and awareness of wildlife-related issues and funding needs of the UDWR.

To accomplish these objectives, UDWR has helped to initiate several programs to educate public citizens about sensitive species and habitats (Appendix B).

CHAPTER 3 . COORDINATING CWCS EFFORTS WITH MANAGEMENT AGENCIES

(Element 7)

DEVELOPMENT, IMPLEMENTATION, REVIEW AND REVISION

The overall process of Comprehensive Wildlife Conservation Strategy (CWCS) development and implementation requires the cooperation and coordination of efforts on the part of various organizations and agencies that have a role in managing portions of Utah's land or conserving Utah's wildlife species. Thus, the CWCS has become a "partners" process (for a description of this process, see Chapter 10). Currently, partners participating in the development, review, implementation, and revision of the CWCS include the United States Forest Service (USFS), Bureau of Land Management (BLM), United States Fish and Wildlife Service (USFWS), Natural Resources Conservation Service (NRCS), Utah Department of Natural Resources (UDNR), the Utah Farm Bureau Federation, Sportsmen for Fish and Wildlife, The Nature Conservancy, Trout Unlimited and the Utah Audubon Society. Over the past two years, partners have helped develop the strategy by providing useful comments and suggestions about what should be included in the strategy. Each partner is invited to attend all planning meetings for the CWCS.

Recognizing the need for collaborative efforts in producing and implementing this strategy, the UDWR has identified additional potential partners that may desire to participate in the development of the CWCS. Partner solicitation (Chapter 2) will continue while the plan is being implemented and reviewed. Stakeholders that do not choose to actively participate will be updated on the progress of the CWCS through direct contact. Additionally, a web site devoted to the CWCS will be maintained and readily available to inform partners and the public of our progress.

FEDERAL, STATE, AND LOCAL AGENCIES AND INDIAN TRIBES

Many constituents of the UDWR and state citizens are interested in effecting positive change on the publicly owned forest and range habitats essential for wildlife population health (*e.g.,* enhancing sagebrush steppe for wintering mule deer herds or sage grouse recolonization). Much of Utah's publicly owned landscape is managed by two federal agencies: USFS and BLM. In addition, the USFWS manages several National Wildlife Refuges (i.e., Ouray, Fish Springs, and Bear River) in Utah. All federal agency land management planning processes welcome/accept public comments to identify needs and specify the elements that should be addressed to best serve all citizens, regardless of their active participation in regulated wildlife recreation pursuits such as angling, hunting and viewing.

Some state entities also have public land management authority, such as the School and Institutional Trust Lands Administration (SITLA). These land management entities have different ways to develop plans that affect wildlife habitat. In addition, some private organizations, such as The Nature Conservancy and The Audubon Society, are also committed to the conservation of habitats essential for fish and wildlife population viability and have developed Ecosystem Plans or Ecological Assessments for various geographically or ecologically defined systems.

All of the following entities profiled are involved in currently on-going partnership projects with the UDWR for which we are grateful. The CWCS is being made available to these entities, and incorporation of the CWCS into their respective planning processes will be encouraged.

Federal Agencies

Bureau of Land Management (BLM).—The BLM manages approximately 23 million surface acres of public land in Utah with the mission of sustaining its health, diversity and productivity. The BLM operates 9 Field Offices, one Field Station, and one National Monument in Utah, each of which periodically revises its Land Use Plan. The field offices currently revising their RMPs include Kanab, Moab, Monticello, Price, Richfield and Vernal.

United States Forest Service (USFS).—The land use plans of the USFS outline broad goals and priorities for forest management so that forest resources are used in a sustainable manner to provide a variety of products and use opportunities for current and future generations. Forest plans must be revised every 10-15 years to keep up-to-date with changing natural and social conditions, scientific knowledge and laws. The USFS administers 6 national forests in Utah: Uinta, Ashley, Wasatch-Cache, Fishlake, Manti-LaSal, and Dixie. Each of these forests has a published Forest Plan that provides management direction for the many uses of a national forest including, outdoor recreation, range, timber, watershed, fish and wildlife, minerals, wilderness, and cultural resources. Currently, Ashley, Manti-LaSal, Dixie, and Fishlake National Forests are revising their forest plans. Revisions for Uinta and Wasatch-Cache National Forests were completed in 2003.

National Park Service (NPS).—The NPS seeks to preserve, protect, and manage biological resources and related ecosystem processes in the National Park System, so that future generations may enjoy them. The NPS manages five national parks, seven national monuments, and two national recreation areas in the state of Utah. The management of each park is guided by natural resource management plans, which guide management practices of fire, vegetation, and wildlife. These plans must be revised every 10-15 years.

The Bureau of Reclamation (BOR).— BOR is a contemporary water management agency that has initiated programs, and activities to assist Western States, Native American Tribes and others meet water needs and balance the multitude of competing uses of water, while protecting the environment and the public's investment. The BOR develops and implements both strategic and annual plans that align agency resources with program objectives.

Department of Defense (DOD).—With exception, as defined in the Endangered Species Act, the DOD is subject to federal environmental regulations regarding environmental quality standards and protection of federally listed species. Both Hill Air Force Base and Dugway Proving Ground have wildlife management plans and research objectives in place to benefit sensitive species.

Natural Resources Conservation Service (NRCS).—The NRCS provides assistance to land users, communities, units of state and local government, and other Federal agencies in planning and implementing conservation systems. The purposes of the conservation systems are to reduce erosion, improve soil and water quality, improve and conserve wetlands, enhance fish and wildlife habitat, improve air quality, improve pasture and range condition, reduce upstream flooding and improve woodlands. NRCS and partnering agencies administer a broad range of programs to assist farmers, ranchers, and other landowners in conserving natural resources. Many of these programs identify conservation of at-risk species and their habitat as a priority.

These programs provide incentives such as technical and cost-sharing assistance to install conservation practices. The CWCS will be used to help direct program funds to assist in the conservation of priority species and habitat types.

The U.S. Fish and Wildlife Service (USFWS).—The USFWS helps protect a healthy environment for fish and wildlife at the federal level. The USFWS administers the Bear River Migratory Bird Refuge, Fish Springs and Ouray National Wildlife Refuges. As most national refuges were established to protect the habitat and survival of wildlife species, the USFWS operates these refuges under conceptual management or comprehensive conservation plans. Comprehensive plans were completed for the Bear River Refuge in 1997, Ouray in 2000, and Fish Springs in 2004. The National Wildlife Refuge System Improvement Act of 1997 requires these plans to be revised every 15 years, and plans must be consistent with fish and wildlife conservation plans of the State in which the refuge is located.

The Bureau of Indian Affairs (BIA).—The BIA actively encourages and trains Indian people to manage their own affairs under the trust relationship to the Federal Government, and facilitates full development of their human and natural resource potentials.

State Agencies

Utah Division of Wildlife Resources..— The mission of the Division of Wildlife Resources is to assure the future of protected wildlife for its intrinsic, scientific, educational and recreational values through protection, propagation, management, conservation and distribution throughout the State of Utah. In 1995, the Utah Legislature established an account within the Division to fund fish and wildlife habitat conservation and improve public access for hunting and fishing. This legislation also created the Habitat Council to provide guidance to the Division in the use of the funds. A portion of the revenue received from the sale of each license, permit, stamp and certificate of registration is placed directly into the Wildlife Habitat Account. The Habitat Council is comprised of four DWR representatives and four citizen members. The citizen members represent the following interests: upland game, waterfowl, big game, aquatics and non-game. The council reviews project proposals and submits recommendations to the Division director on how to spend habitat account funds.

Utah Department of Natural Resources (UDNR).—The UDNR is comprised of the State Divisions of Wildlife, Water Rights, Water Resources, Oil, Gas, and Mining, Forestry, Fire, and State Lands, State Parks and Recreation, and the Utah Energy Office. The UDNR administers the Endangered Species Mitigation Fund (ESMF) which was created in 1997 to help state agencies, counties and private citizens comply with the Endangered Species Act of 1973. Additionally, the ESMF was to help develop species status assessments and species protection measures to help prevent the need for future listings under ESA. The species account was fully funded in 2001 with approximately $3 million annually to provide for participation in habitat conservation planning, fish recovery programs, and development and implementation of conservation agreements. Cooperation between other state and federal biologists, involvement of local and county officials, and direct participation of private interests have all been facilitated and improved by the new programs and actions afforded by the ESMF. The UDNR, through the ESMF, will help to implement the CWCS by directly funding recovery and restoration projects, that meet the objectives outlined in the CWCS for habitats and species of conservation need.

Utah Division of Parks and Recreation.—The Division of Parks and Recreation engages in planning efforts to guide short and long-term site management for each park within the system.

Planning is needed to protect and interpret each park's natural and cultural resource base, and ensure that resources, including wildlife and habitat, are sustainable for the enjoyment of future generations. The Division of Parks and Recreation and the UDWR are both housed within the Department of Natural Resources, facilitating the integration of the CWCS into wildlife management on state park lands.

Utah Division of Forestry, Fire and Lands.—This division develops and participates in forest health, forest stewardship, and fire management programs to ensure long term sustainability of natural resources, including wildlife and habitats, on non-federal forest, range, and watershed lands. The Division of Forestry, Fire and Lands and the UDWR are both housed within the Department of Natural Resources, facilitating internal coordination regarding the CWCS.

Utah Division of Oil, Gas and Mining.—The Division of Oil, Gas and Mining regulates the exploration and development of coal, oil and gas, and other minerals in a manner which encourages responsible reclamation and development and protects the environment. The Division of Oil, Gas and Mining and the UDWR are both housed within the Department of Natural Resources, facilitating coordination regarding wildlife and habitat management developed lands.

Other Divisions within the Department of Natural Resources.—Other state divisions include: 1) the Division of Water Resources which promotes the orderly and timely planning, conservation, development, utilization and protection of Utah's water resources; 2) the Division of Water Rights which administers the use of Utah's water based on established law and water rights by providing prompt, quality service and consideration for public interest and the environment; 3) the Utah Energy Office which promotes efficient use and appropriate development of energy resources in Utah; and 4) the Utah Geological Survey which creates, interprets and provides information about Utah's geologic environment, resources and hazards to promote safe, beneficial and wise use of the land. The CWCS can be integrated into guidance documents and operating plans of each of these divisions.

The School and Institutional Trust Lands Administration (SITLA).—This administration provides for a statewide inventory of assets, including natural and cultural resources, on land trusts. Based on the inventory, the agency develops a statewide management plan that includes a five-year strategic plan, one-year tactical plans, and identification of appropriate performance measures. The UDWR will encourage SITLA to incorporate the CWCS into these management plans to account for affected species and habitats.

Community Based Conservation Extension Specialists (CCES) and Utah State University Extension (USUEXT).—With a history of local involvement in the community, non-regulatory status, and a good relationship with local ranchers and farmers, USUEXT entered into a long term agreement and contract with the UDWR to develop a process to involve local communities in sensitive species conservation. UDWR and USUEXT believe this cooperative effort is necessary if local communities are going to be pro-active in resolving sensitive species and wildlife/natural resource issues. Presently, USUEXT is involved in intensive research and monitoring of local sage-grouse populations, and has hired CCES who are working cooperatively with the UDWR and other partners to facilitate/coordinate sage-grouse Local Working Groups (LWGs) in Utah. These groups are developing local sensitive species conservation plans and will utilize and implement the CWCS on local levels. These plans will identify strategies to improve rangeland habitat and watershed conditions, increase sage-grouse populations, and sustain local economies. Each plan contains information on the current status of area sage-grouse populations

and rangelands, local community issues and concerns, and agreements or actions required to implement management strategies.

Indian Tribes

Five major American Indian tribes reside in Utah: 1) Ute; 2) Dine' (Navajo); 3) Paiute; 4) Goshute; and 5) Shoshoni. Together, these tribes manage more than 1.4 million acres of land in Utah. Some of these tribes have functioning tribal Fish and Wildlife Departments that work in coordination with the UDWR on already existing conservation efforts. Similarly, the UDWR will work with individual tribal councils and management teams to help implement the CWCS on tribal lands

Non-governmental Organizations

The Nature Conservancy (TNC).—The Conservancy seeks to preserve the plants, animals, and natural communities on Earth by protecting habitat. TNC's ecoregion planning approach divides the nation into physiographically similar areas to identify and protect large tracts of land that are characterized by unique natural areas and features. This planning methodology is a systematic, science-based approach to habitat conservation. An ecoregional plan, is a "blueprint" for conservation to identify and guide management of the most important conservation sites. Utah has seven distinct TNC ecoregions TNC is identifying and developing strategic plans for threatened areas within each ecoregion to protect and maintain biodiversity. Utah's CWCS can be utilized in developing these plans.

The Audubon Society.—Audubon is dedicated to protecting birds and wildlife, through restoring and protecting the environment, securing funding for vital conservation programs, and preserving key natural resource protections. Audubon has initiated the Important Bird Areas (IBA) Program to identify a network of sites that provide critical habitat for birds. This effort recognizes that habitat loss and fragmentation are the most serious threats facing populations of birds across America and around the world. The CWCS will be used to help delineate and designate IBAs for Utah's avian species of greatest conservation need.

The Utah Farm Bureau Federation.—The Farm Bureau has major interests in agriculture related issues, including wildlife. The Farm Bureau supports multiple use and sustained yield principles in managing and maintaining Utah's wildlife ecosystem, and cooperative agreements between landowners, the UDWR, and other agencies to establish and maintain target numbers of wildlife consistent with land habitat constraints. UDWR will work with private landowners and the Farm Bureau to implement the CWCS on agricultural lands. A newly created Sensitive Species Task Force is (collaboratively with UDWR staff) hosting a workshop in each county.

Utah Foundation for Quality Resource Management (QRM).-- This organization was founded by private landowners and landowner representatives with a desire to work toward management of healthy watersheds, agricultural values, and healthy wildlife populations. QRM representatives currently provide planning, project design and assistance with implementation for private landowners and public land grazers to achieve the objectives of the mission statement. There are currently three local chapters of QRM (Lost Creek, Chalk Creek, and East Box Elder) and one affiliate (Rich County Coordinated Resource Management). QRM has hosted numerous agency, working group and local government tours to discuss sustainable shrubsteppe management and has been active in game and non-game management and research issues.

Mule Deer Foundation (MDF) (Conservation Permit-Funded & Other Projects). MDF's goals center on restoring, improving and protecting mule deer habitat (through land and easement acquisitions), which result in self-sustaining, healthy, free-ranging, and huntable mule deer populations. MDF achieves its goals through partnering with state and federal wildlife agencies, conservation groups, businesses and individuals to fund and implement habitat enhancement projects on both public and private lands. MDF can aid in implementing Utah's CWCS by incorporating the objectives of the strategy into funded habitat restoration projects. Conservation permit funds awarded to the UDWR will be used to provide the non-federal match required to access federal funding for habitat restoration projects.

The Rocky Mountain Elk Foundation (RMEF).— The mission of the Elk Foundation is to ensure the future of elk, other wildlife and their habitat through: 1) conserving, restoring and enhancing natural habitats; 2) promoting the sound management of wild, free-ranging elk, which may be hunted or otherwise enjoyed; 3) fostering cooperation among federal, state and private organizations and individuals in wildlife management and habitat conservation; and 4) educating members and the public about habitat conservation, the value of hunting, hunting ethics and wildlife management. Partners vary by project. RMEF funds are used to conserve, restore and enhance natural habitats on state, federal and private land. RMEF can aid in implementing Utah's CWCS by incorporating the objectives of the strategy into funded habitat restoration projects. Conservation permit funds awarded to the UDWR will be used to provide the non-federal match required to access federal funding for habitat restoration projects.

Sportsmen for Fish and Wildlife (SFW).— SFW was organized to promote the protection and enhancement of wildlife habitat, the quality of wildlife management programs, and protect America's family heritage of hunting and fishing. SFW achieves objectives by working with state and national elected officials, private landowners and state and federal wildlife and land management agencies. SFW can aid in implementing Utah's CWCS by incorporating the objectives of the strategy into habitat projects funded by the organization. Conservation permit funds awarded to the UDWR will be used to provide the non-federal match required to access federal funding for habitat restoration projects.

Working Groups

Local Working Groups (LWGs) consist of private landowners, local elected officials, federal land permittees and lessees, oil and gas industry, state and federal wildlife and land management agency personnel, and representatives from non-governmental organizations. LWGs meet regularly to discuss and identify conservation and socio-economic issues and needs, establish goals and objectives, and set management priorities. Thus, LWGs are institutionalizing a dynamic community-based process that will work to resolve species conservation issues well into the future.

Reptile Working Group.—Citizen groups are working closely with the Division's Native Aquatic Species Program (Program) on the conservation and management of Utah's herpetofauna. Individual participants include those who hold membership in the Reptile and Amphibian Negotiation Association (RANA), Utah Herpetological Association (UHA), and other interested, but unaffiliated, members of the public. Participants in the Reptile Working Group volunteer their time to conduct herpetological surveys, providing data that would not otherwise be available to the Program. The CWCS can be used to identify survey needs and develop management strategies for Utah's herpetofauna.

Sage-grouse Working Groups.— These groups work to mitigate the effects of habitat and management decisions on sage-grouse and other shrub-steppe obligate species. Presently 11 LWGs are operational in Utah with two additional groups set to come on line in 2005. They work collaboratively to develop local management plans that identify strategies and management actions that will be implemented by the LWGs to achieve identified goals and objectives. Utah's CWCS can easily be incorporated into management actions identified by LWGs for Sage-Grouse.

Wolf Working Group (WWG).-- The UDWR created the WWG in the summer of 2003 to respond to the presence of wolves in Utah after federal delisting by developing a wolf management plan that accounts for the biological, socio-political and legal issues surrounding wolves in Utah. The WWG includes representatives from academia (USU faculty), wolf advocates (Utah Wolf Forum), sportsmen representatives (Rocky Mountain Elk Foundation and Sportsmen for Fish and Wildlife), agricultural interests (Utah Farm Bureau Federation and Utah Wool Growers), local government representatives (Utah Association of Counties), the Ute Indian Tribe and the Utah Wildlife Board. Technical advisors from the UDWR, the USFWS, and the US Department of Agriculture Wildlife Services assist the working group. As the documents' development have been parallel, the objectives of the CWCS will be incorporated into strategies outlined in the Wolf Management Plan.

Great Basin Bat Cooperative (GBBC).-- The GBBC is currently a pilot program to proactively manage Utah's bats and is focused in the northern and central portions of Utah. Current objectives of the GBBC include: 1) conducting a systematic inventory of the bat species utilizing the northern portion of the Great Basin, 2) identifying areas of high value to bats (i.e. roosts, hibernacula, foraging habitat) and establish monitoring protocols and conservation measures, and 3) creating and maintaining a central geodatabase for storage and analysis of data. Decision making partners (agencies, organizations, or individuals) are required to provide an annual investment of $1000.00, most choosing to do so with in-kind donations of time or equipment. Of the 18 species of bats currently known to inhabit Utah, 6 (30%) are listed on the state's sensitive species list. Of the remaining 12, at least half of those have poorly understood distributions and little to no information on their population status.

Joint-Partnership Programs

Utah Partners for Conservation and Development (UPCD/Partnership).—The UPCD is an organization that represents state and federal natural resource agencies, universities, county and local government, private landowners, conservation organizations, and vested stakeholders. The partnership's shared natural resource goals transcend agency jurisdiction and geo-political boundaries. These include Utah's native wildlife and biological diversity, water quality and yield for municipal, agricultural and wildlife uses, sustainable agriculture through working farms and ranches, and outdoor recreation for sustained quality of life and rural economic stability. Strategies identified by the UPCD to improve land health and management are implemented through statewide, regional and local teams that work in concert with management, science and conservation outreach team. Through watershed restoration and habitat initiatives, the UPCD will directly implement the CWCS while focusing on management, science, and conservation outreach.

Environmental Quality Incentive Program (Farm Security and Rural Investment Act of 2002).-- The purpose of this Farm Bill program is to enhance and protect habitats for wildlife

species experiencing significant population declines. Partners include NRCS, Utah Association of Conservation Districts, Farm Bureau, USFWS and USUEXT. The program seeks to restore habitat on private land that is critical to the survival of at-risk species. The CWCS will be used to identify those habitats.

Conservation Reserve Program (Farm Security and Rural Investment Act of 2002).—This program was designed to conserve and protect highly erosive soils on crop lands. The Conservation Reserve Program (CRP) is a voluntary program for agricultural landowners. Through CRP, farmers can receive annual rental payments and cost-share assistance to establish long-term, resource conserving covers on eligible farmland. The program is administered by the Commodity Credit Corporation through the Farm Service Agency (FSA), and program support is provided by Natural Resources Conservation Service, Cooperative State Research and Education Extension Service, state forestry agencies, and local Soil and Water Conservation Districts.

Grassland Reserve Program (Farm Security and Rural Investment Act of 2002).—The purpose of the program is to keep vulnerable grasslands from being converted to cropland or other uses. Partners include FSA, NRCS, soil conservation districts and private landowners. The program helps landowners restore and protect grassland, rangeland, pastureland, shrubland and certain other lands and provides assistance for rehabilitating grasslands.

Wildlife Habitat Incentive Program (WHIP) (Farm Security and Rural Investment Act of 2002).-- The purpose of WHIP is to develop and improve wildlife habitat on private lands. Partners include NRCS, soil conservation districts and private landowners. The program provides both technical assistance and cost sharing to help establish and improve fish and wildlife habitat.

Landowner Incentive Program (LIP).-- The purpose of LIP is to protect and restore habitat that supports sensitive species on private land. Partners include USFWS, TNC and private landowners. The program serves to restore habitat on private land that is critical to the survival of at-risk species. The CWCS will be used to identify those habitats.

Partners For Fish and Wildlife Program.—The purpose of this program is to conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of the American people. Partners include USFWS and private landowners. The program offers technical and financial assistance to private (non-federal) landowners to voluntarily restore wetlands and other fish and wildlife habitats on their land.

Wetlands Reserve Program (WRP).—WRP is a voluntary program to restore and protect wetlands on private property through conservation easements or restoration cost-share agreements. Landowners receive financial incentives to restore or enhance wetlands in exchange for retiring marginal agricultural land.

Conservation Security Program (CSP).—CSP is a voluntary program that supports a tradition of ongoing stewardship of working agricultural lands by providing payments for maintaining and enhancing natural resources. CSP promotes the conservation and improvement of soil, water, air, energy, plant and animal life, and other conservation purposes. Participants must address wildlife resource concerns to attain the highest payment potential.

Uintah Basin Interagency Raptor Team (UBIRT).—This is a joint effort by the BLM, UDWR, USFS, Utah State University – Uintah Basin, USFWS, and HawkWatch International, to coordinate raptor monitoring and habitat improvement. A primary objective of this team is to develop an interagency database that all members can access for research purposes. CWCS objectives can be used in the development of UBIRT's raptor monitoring and research activities.

CHAPTER 4 . APPROACH – PLANNING OVERVIEW

(partially addresses the 8th Element)[1]

OVERVIEW

Prior to Comprehensive Wildlife Conservation Strategies (CWCS), management plans and conservation agreements have been continuously developed at Federal, State, and local levels to protect and conserve wildlife and their habitat. While these initiatives have been valuable and productive in achieving their objectives, the CWCS is truly comprehensive in that it recognizes the importance of all of these efforts and provides a framework to address conservation threats and implement actions. The Utah CWCS will serve as an umbrella framework to align and relate all wildlife and land management planning approaches already underway, and it may help identify and address existing gaps.

APPROACH

Coordinating the CWCS with UDWR Strategic Plan

Since 1998, the Utah Division of Wildlife Resources (UDWR) has operated under a comprehensive Strategic Plan (UDWR 2000). Objectives of this plan include sustaining and restoring habitat function so that wildlife populations (i.e., range, abundance and distribution) are not hindered by the absence of crucial elements (i.e., winter food quantity/quality, shelter requirements or safety/security). Although not required in the elements, this section links the CWCS directly to a corresponding goal and objectives within the DWR Strategic Plan.

The UDWR Strategic Plan's goal that directly relates to Utah's CWCS purpose is to "conserve, protect, enhance, and manage Utah's wildlife species of conservation need." Three objectives were established for this goal (Objectives 2-4 respectively) that are paraphrased here, and serve as the conceptual basis for guiding the direction of the Utah CWCS. These objectives are: 1) Increase the population distribution and/or abundance of a specific proportion of classified state species of concern within a specified time frame; 2) Meet state recovery goals for a specific number of currently listed threatened and endangered (i.e., Tier I) species within a specified time frame while at the same time preventing the need for further federal listing of any additional species from Tiers II or III; and 3) Maintain distribution and abundance of all other naturally occurring wildlife and priority ecosystems/species within a specified time frame.

UDWR has other Strategic Plan goals beyond the one that most readily aligns with the purpose of the CWCS. These, however, are not specific to the charge given the States to address in their Strategy. Thus, once the National Acceptance Advisory Team (NAAT) has approved and accepted Utah's CWCS, all goals and objectives in the UDWR Strategic Plan will serve as a supplemental planning document. However, they will be linked through this commonly shared goal and its objectives. Within a year of approval of the CWCS, the UDWR Strategic Plan will be reviewed and reissued. Then, when the CWCS is revised in ten years, the UDWR Strategic Plan will also be renewed at the same time.

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[1] The remainder of Element 8 is discussed in Chapter 2.

Linking other Plans with the CWCS

The plans listed below are those specifically identified by UDWR and its CWCS Partners as being relevant to Utah's CWCS. Independently, each partner has established plans to preserve individual species, species groups, or important habitat types or areas. This section's purpose is to provide an inventory of the efforts that are already underway which will help avoid duplicating efforts and identify species of concern not currently covered by any plans. In order to take advantage of the work and planning that has gone into these various efforts, it CWCS Partners will be strongly encouraged to coordinate their wildlife and habitat related plans with the CWCS whenever possible. Where available, Internet links to these planning efforts are provided.

LAND MANAGEMENT PLANS (USFS)

Forest Management Plans provide management direction for the many multiple uses of national forests including outdoor recreation, range, timber, watershed, fish and wildlife, minerals, wilderness, roadless areas, and cultural resources. The plan reflects current issues, values, and management practices.

Ashley National Forest

The Ashley National Forest covers 1,287,909 acres in northeast Utah, includes 276,175 acres of High Uintas Wilderness.

Dixie National Forest - http://www.fs.fed.us/r4/dixie/projects/FParea/LiveDocs/Dixie_LRMP.pdf

Dixie National Forest consists of two million acres that stretches across southern Utah. The largest National Forest in Utah, it straddles the divide between the Great Basin and the Colorado River.

Fishlake National Forest http://www.fs.fed.us/r4/dixie/projects/FParea/LiveDocs/Fishlake.pdf

Fishlake National Forest consists 1.4 million acres of plateau and mountain land in central Utah. Vegetation is diverse and includes aspen spruce-fir, Gambels oak and mountain brush, pinyon pine-juniper woodlands, and sagebrush-grasslands.

Manti-LaSal National Forest http://www.fs.fed.us/r4/mantilasal/projects/projects%20forest%20plan/Forest_Plan_1986/planindex.htm

The 1,413,111-acre Manti-La Sal National Forest is located in southeastern Utah. The Manti Division is part of the remnant Wasatch Plateau (5,000 to 10,000 foot elevation) exhibiting high elevation lakes, diverse vegetation, near vertical escarpments, and areas of scenic and geologic interest.

Uinta National Forest http://www.fs.fed.us/r4/uinta/projects/planning/docs/2003/fp/acrobat/fp_intro.pdf

The vegetation of the Uinta National Forest includes mountain brush, pinyon-juniper, conifers, and aspen.

Wasatch-Cache National Forest http://www.fs.fed.us/r4/wcnf/projects/feis/revised_forest_plan.pdf

Wasatch-Cache National Forest lands are located in the northern and western slopes of the Uinta Mountains, the Wasatch Front, and the Stansbury Range, in the Great Basin. The forest encompasses approximately 2 million acres that protect high quality watersheds for the state of Utah.

LAND USE PLANS (LUPs) – BUREAU OF LAND MANAGEMENT

LUPs establish guidance, objectives, policies, and management actions for public lands administered by BLM field offices. These plans are comprehensive in nature, to resolve or address a wide variety of issues such as soil and water resources, vegetation, and wildlife habitat and fisheries management. The following list includes information about Utah's BLM field offices and links to LUPs.

Salt Lake, 1986, 1990
http://www.ut.blm.gov/planning/BOXRODANDRPS.PDF
http://www.ut.blm.gov/planning/PONYRODANDRPS.PDF

Further land use planning in the majority of the Salt Lake Field Office is currently prohibited due to a planning moratorium imposed by Congress in the National Defense Authorization Act for Fiscal Year 2000.

Vernal, incomplete

In 2001, the Vernal Field Office initiated the process to develop a land LUP for approximately 1,789,000 acres of surface estate lands and 1,934,000 acres of mineral estate lands in north-eastern Utah. This plan will be completed in Fall 2005.

Fillmore, 1987
http://www.ut.blm.gov/planning/WARMRODANDRPS.PDF

Further land use planning in the Fillmore Field Office is currently prohibited due to a planning moratorium imposed by Congress in the National Defense Authorization Act for Fiscal Year 2000.

Richfield, incomplete

In 2001, the Richfield Field Office began development of an LUP for 2.2 million acres of public land in Sanpete, Sevier, Piute, Wayne and eastern Garfield Counties in Utah, and the mineral estate under all BLM land and the adjoining National Forests. This plan will be completed in Fall 2006.

Price, incomplete

The Price Field Office manages 2.5 million acres of land in central Utah. The Price River Resource Area and the San Rafael Resource Area will be jointly managed under Price's new LUP. The LUP was initiated in Fall 2001 and will be complete by Fall 2005.

Moab, incomplete

The Moab Field Office is responsible for administering approximately 1.85 million acres of public lands located in southeastern Utah contained within Grand County and the northern portion of San Juan County. The Moab LUP was initiated in Summer 2003 and will be completed by June 2006.

Cedar City, 1986
http://www.ut.blm.gov/planning/CBGA+ROD.PDF

Revisions of Pinion and Cedar/Beaver/Garfield/Antimony LUPs is forcasted to begin in Fall 2007 and be completed by Spring 2011.

St. George, 1999
http://www.ut.blm.gov/planning/STGEORGE/DIXIEEIS.PDF

Kanab, incomplete

The Kanab Field Office manages approximately 600,000 acres of pubic land in south central UT. The planning area also includes an additional 40,500 acres of public land that falls within the old Escalante Planning Unit. These public lands, although managed by the Grand Staircase Escalante National Monument (GSENM), will be included in the development of the Kanab LUP, which was initiated in Fall 2004. Expected completion is Spring 2008.

Monticello, incomplete

The Monticello Field Office is responsible for administering about 1.78 million acres of public lands in southeastern Utah contained within in the southern portion of San Juan County. An LUP was initiated in Summer 2003 and will be completed in June 2006.

Grand Staircase Escalante National Monument, 1999
http://www.ut.blm.gov/planning/GSENMAMPANDROD/plan.pdf

The National Monument's LUP revision began in Fall 2003 and will be completed by Spring 2006.

COMPREHENSIVE CONSERVATION PLANS (USFWS)

The 1997 National Wildlife Refuge Improvement Act requires that the U.S. Fish and Wildlife Service develop a "Comprehensive Conservation Plan" (CCP) for each of the nation's more than 530 Refuges within 15 years. Every Refuge plan should address wilderness, land acquisition, compatibility, and priorities.

Bear River Migratory Bird Refuge, 1997
http://library.fws.gov/CCPs/bear_river_final.pdf

This plan outlines management goals, performance standards, and budgets for the refuge for the next 15 years. Objectives include management of water, hunting, grasslands, predators, fire, integrated pests, and fisheries.

Fish Springs National Wildlife Refuge, 2004
http://library.fws.gov/CCPs/fishsprings_final04.pdf

The CCP will guide management of Refuge operations, habitat restoration and visitor services for the next 15 years by providing clear goals and objectives, implementation strategies, and recommended staffing and funding for the Refuge. Habitat, ecological integrity, cultural resources, visitor services, and partnerships are primary goals set forth in the CCP.

Ouray National Wildlife Refuge
http://library.fws.gov/CCPs/ouray_final.pdf

This plan outlines management objectives to improve the performance of Ouray as a national Wildlife Refuge over 15 years. Four issues of particular concern include degradation and loss of riparian habitat, invasion of nonnative plants, selenium control, and mosquito production. The plan specifically identifies some riparian sites that presently lend themselves to restoration.

SPECIES RECOVERY PLANS (USFWS)

Bonytail Chub, 1990
http://ecos.fws.gov/docs/recovery_plans/2002/020828a.pdf

The new common name for this species is bonytail. This species is native to the Green and Colorado river drainages in Utah. Utah monitors this species in the wild, but wild bonytail have not been located in many years. These fish are also reared at the Wahweap State Fish Hatchery and are released into the Green River. The Division is experimenting with rearing bonytail in off-channel habitats along the Green River. Recovery Goals for this species were finalized in 2002. The Division participates in the Upper Colorado River Endangered Fish Recovery Implementation Program and the Upper Colorado River Endangered Fish Recovery Team to help coordinate recovery efforts for this species.

Humpback Chub, 1990
http://ecos.fws.gov/docs/recovery_plans/2002/020828c.pdf

This species is native to the Green and Colorado river drainages in Utah. Of the four big river fish (bonytail, humpback chub, Colorado pikeminnow, and razorback sucker) humpback chub populations are probably largest, though still dramatically reduced from historic levels, according to the most recent population estimates by the Division. Recovery Goals for this species were finalized in 2002. The Division participates in the Upper Colorado River Endangered Fish Recovery Implementation Program and the Upper Colorado River Endangered Fish Recovery Team to help coordinate recovery efforts for this species.

Colorado Squawfish, 1991
http://ecos.fws.gov/docs/recovery_plans/2002/020828b.pdf

The new common name for this species is Colorado pikeminnow. A native to the Green, Colorado, and San Juan river drainages in Utah, these fish can still be found in the wild, where they are monitored by the Division. They are also in captivity at the Dexter National Fish Hatchery, New Mexico. Recovery Goals for this species were finalized in 2002. The Division participates in the Upper Colorado River Endangered Fish Recovery Implementation Program and the Upper Colorado River Endangered Fish Recovery Team to help coordinate recovery efforts for this species.

Razorback Sucker, 1998
http://ecos.fws.gov/docs/recovery_plans/2002/020828d.pdf

This species is much reduced from historic levels, though a natural spawning site has been identified in the Green River in Utah. They can be found in the Green, Colorado, and San Juan river drainages. The Division monitors razorback suckers in the wild, holds a stock at the Wahweap State Fish Hatchery, and has been experimenting with rearing this species in off-channel ponds along the Green River. Recovery Goals for razorback sucker were finalized in 2002. The Division participates in the Upper Colorado River Endangered Fish Recovery Implementation Program and the Upper Colorado River Endangered Fish Recovery Team to help coordinate recovery efforts for this species.

Desert Tortoise, 1994

Desert tortoises occur in Utah only in the far southwestern corner of the state in the Mojave Desert. Protection of the species and its habitat was addressed in the Washington County Habitat Conservation Plan 1995. The Division conducts extensive monitoring for

this species in Utah. The Division provides desert tortoise removal services for incidental take permitted under the HCP and administers a desert tortoise adoption program for animals abandoned along the Wasatch Front. The Division is an active participant in the Washington County Habitat Conservation Plan and associated management plans that administer the Red Cliffs Desert Reserve and other protected areas of the Mojave Desert in Washington County.

Virgin River Fishes, 1995
http://ecos.fws.gov/docs/recovery_plans/1995/950419a.pdf

Two species are addressed in this plan, the woundfin and the Virgin River chub. Virgin River chub numbers are low in the Virgin River drainages; woundfin numbers are extremely low. Woundfin have been transferred to the Dexter National Fish Hatchery, New Mexico, and a very few transferred woundfin persist at the Wahweap State Fish Hatchery. The Division participates in the Virgin River Resource Management and Recovery Program and Virgin River Fishes Recovery Team to help coordinate recovery efforts for these fish.

Kanab Ambersnail, 1995
http://ecos.fws.gov/docs/recovery_plans/1995/951012.pdf

This terrestrial snail requires wet habitats. It is found in southern Utah as well as in northern Arizona, according to current taxonomy, which is being investigated further. An Interim Conservation Plan for this species was produced by Arizona Game and Fish Department in 2002, and includes actions for Utah populations. The highest priority for the Division at this time is to resolve the species' taxonomy. The Division participates in the Kanab Ambersnail Working Group to help coordinate recovery efforts for this species.

June Sucker, 1999
http://ecos.fws.gov/docs/recovery_plans/1999/990625.pdf

Endemic to Utah Lake, very few wild June sucker can be found. The Division has been actively monitoring this species since the 1980s. Also in the 1980s, the Division initiated a program of taking wild-caught eggs and rearing June sucker in hatcheries and refugia. Refuge-reared fish are now returning to spawn along side wild fish. The Division participates in the June Sucker Recovery Implementation Program and the June Sucker Recovery Team to help coordinate recovery efforts for these fish.

Mexican Spotted Owl, 1995
http://ifw2es.fws.gov/Documents/R2ES/MSO_Recovery_Plan.pdf

The Recovery Plan provides a basis for management actions to be undertaken by land-management agencies and Indian Tribes to remove recognized threats and recover the spotted owl. The plans five elements include a recovery goal and set of delisting criteria, provision of three management strategies for habitat protection, recommendation for population and habitat monitoring, a research program to determine anthropogenic effects on the species and its habitat, and oversight and coordination responsibilities.

Southwestern Willow Flycatcher, 2002
http://arizonaes.fws.gov/SWWFFINALRecPlan.htm

This document contains information regarding the current population status and habitat requirements of this species, and threats to its continued survival, including significant loss of breeding habitat. Proposed actions for species recovery to the point of reclassification as "threatened" or delisting include are to 1. Increase and improve

occupied, suitable, and potential breeding habitat; 2. Increase metapopulation stability; 3. Improve demographic parameters; 4. Minimize threats to wintering and migration habitat; 5. Survey and monitor; 6. Conduct research; 7. Provide public education and outreach; 8. Assure implementation of laws, policies, and agreements that benefit the flycatcher; 9. Track recovery progress.

Bald Eagle (Southwestern States), 1982
http://arizonaes.fws.gov/Documents/RecoveryPlans/SWBaldEagle.pdf

This recovery plan defines specific research and management objectives designed to insure the continued survival of the small and possibly declining population of southwestern bald eagles. With a focus on restoration and protection of southwestern riparian habitat, recovery plans include population recovery, species management, and research.

Utah Prairie Dog, 1991
http://ecos.fws.gov/docs/recovery_plans/1991/910930b.pdf

This plan provides guidelines for management and recovery of the Utah Prairie Dog in Utah. The recovery objective is federal delisting through the establishment of a self-sustaining viable unit with retention of genetic diversity. Management actions for meeting the recovery objective are outlined.

Black-footed Ferret, 1978
http://ecos.fws.gov/docs/recovery_plans/1988/880808.pdf

The Black-footed Ferret Recovery Plan outlines steps for recovery of the black-footed ferret throughout its historical range. The goals of the plan are to increase the number of captive ferrets to a facility capacity of 200 breeders by 1991, and establish populations, which before breeding, number 1,500 black-footed ferrets in 10 or more populations in the wild.

Gray Wolf, 1987
http://ecos.fws.gov/docs/recovery_plans/1987/870803.pdf

This plan outlines management guidelines and objectives for the grey wolf in the northern Rocky Mountain region. The primary goal of this plan is federal delisting by securing and maintaining a minimum of 10 breeding pairs of wolves in three recovery areas for at least three years.

HABITAT CONSERVATION PLANS (USFWS)

http://endangered.fws.gov/hcp/

Habitat Conservation Plans (HCPs) are developed by a non-Federal entity (e.g., a landowner or local government) in order to apply for an incidental take permit under section 10(a)(1)(B) of the Endangered Species Act. An incidental take permit allows a property owner to conduct otherwise lawful activities in the presence of listed species, thus allowing development to proceed while promoting conservation of threatened and endangered species. The HCP describes, among other things, the anticipated effect of a proposed taking on the affected species and how that take will be minimized and mitigated. There are five active HCPs in the state.

Iron Co. (Utah Prairie Dog, Bald Eagle)
Washington Co. (Bald Eagle, Southwestern Willow Flycatcher, Mexican Spotted Owl, Desert Tortoise, Woundfin)
Hell Canyon, Salt Lake Co. (Peregrine Falcon - delisted)

Noriega, Zittering, Finch, Panguitch (Utah Prairie Dog)
Connel Gower, Iron Co. (Utah Prairie Dog)

NATIONAL PLANS

North American Waterfowl Management (USFWS)
http://birdhabitat.fws.gov/nawmp/images/NAWMP2004.pdf

The North American Waterfowl Management Plan is an international action plan for a partnership of government, non-government and private organizations to conserve migratory birds throughout the continent by conserving landscapes, guided by sound science. Plan projects contribute to the protection of habitat and wildlife species and its goal is to restore waterfowl populations to their 1970s levels by conserving habitat.

Continental Partners in Flight (USFWS)
http://www.partnersinflight.org/cplan.htm

This plan provides a continental synthesis of priorities and objectives to guide landbird conservation actions at national and international scales, and serves as the blueprint of habitat conservation. The plan stresses stewardship of habitats and species, research, and monitoring.

U.S. Shorebird Conservation (USFWS)
http://shorebirdplan.fws.gov/USShorebird/downloads/USShorebirdPlan2Ed.pdf

This plan was developed by state and federal agencies and non-governmental organizations to conserve migratory shorebirds and their habitats. The plan provides a scientific framework to determine species, sites, and habitats that most urgently need conservation action. Goals of the plan are to ensure that shorebird habitat, adequate in quantity and quality, is maintained at the local level, and to maintain or restore shorebird populations at the continental and hemispheric levels.

North American Waterbird Conservation (USFWS)
http://www.nacwcp.org/pubs/complete.pdf

This plan is the product of an independent partnership of individuals and institutions having interest and responsibility for conservation of waterbirds and their habitats and provides a framework for the conservation and management of 210 species utilizing aquatic habitats. The Plan documents a process for species status assessment, identifies many key issues requiring conservation action, and proposes the development of a continental monitoring partnership including standardized methodology, bias-assessment, and internet-accessible database systems to support status and trend evaluation.

Important Bird Areas (Audubon)
http://www.audubon.org/bird/iba/index.html

IBAs are sites that provide essential habitat for one or more species bird, and include sites for breeding, wintering, and/or migrating species. To qualify as an IBA, the site must support species of conservation concern (e.g., threatened and endangered species), restricted-ranges species (species vulnerable because they are not widely distributed), species that are vulnerable because their populations are concentrated in one general habitat type or biome, or species, or groups of similar species (such as waterfowl or shorebirds), that are vulnerable because they occur at high densities due to their flocking behavior.

REGIONAL PLANS

Intermountain West Regional Shorebird
http://shorebirdplan.fws.gov/RegionalShorebird/downloads/IMWEST4.doc

The IMW is North America's most important region for several shorebird species for breeding and other life history stages. The most important issue facing shorebird conservation in the IMW is the competition for water. The IMW plan addresses this and other issues through five goals, including habitat management, population monitoring and assessment, research, outreach, and planning for regional cooperation in conservation.

Intermountain West Joint Venture All Bird (incomplete)

The Joint Venture promotes the restoration and maintenance of all bird populations; fosters the protection, restoration, and enhancement of wetlands, riparian habitats, and the widely diverse uplands characteristic of the region. The Intermountain West Joint Venture Strategic Plan will focus on implementing strategies outlined in national plans for waterbirds (North American Waterbird Conservation Plan), shorebirds (US Shorebird Plan), waterfowl (North American Waterfowl Plan), and landbirds (Partners in Flight) assisted by the Coordinated Implementation Plan for Bird Conservation in Utah and 10 additional states throughout the intermountain west.

Western Regional Waterbird (incomplete)

This Plan addresses populations and habitats in Bird Conservation Regions (BCRs) 9, 10, 15 and 16 (U.S. NABCI Committee 2000). The purpose of the Plan is to fill knowledge gaps and aid in "all-bird" conservation efforts of the Intermountain West Joint Venture, 11 States, and other entities associated with the geographic scope of the Plan. Success of the activities outlined in the Plan will be measured by both important habitat and focal species monitoring, and identification of monitoring and research needed to develop trend and/or population data for species for which there are little or no data.

Bird Conservation Regions (BCRs)
http://www.nabci-us.org/bcrs.html

Initiated by the North American Bird Conservation Initiative (NABCI), BCRs are ecologically distinct regions in North America with similar avian communities, habitats, and resource management issues. BCRs were established to assist in rang-wide bird conservation by dividing the US into distinct conservation units. Their purposes include facilitating communication among bird conservation initiatives, facilitating regional bird conservation, promoting partnerships, and identifying and resolving conflicting conservation priorities.

- Colorado Plateau Bird Conservation Region (BCR 16) includes the Wasatch and Uinta Mountains to the west and the Southern Rocky Mountains to the east, separated by the Colorado Plateau.
- Great Basin Bird Conservation Region (BCR 9) includes the Northern Basin and Range, Columbia Plateau, and the eastern slope of the Cascade Range.
- Northern Rockies Bird Conservation Region (BCR 10) includes the Northern Rocky Mountains and outlying ranges in both the United States and Canada, and also the intermontane Wyoming Basin and Fraser Basin.

TNC Ecoregions

The Nature Conservancy's ecoregion planning approach divides the nation into physiographical similar areas to identify and protect large tracts of land that are characterized by unique natural areas and features. The Conservancy is identifying and

developing strategic plans for threatened areas within each ecoregion to protect and maintain biodiversity.

- Utah High Plateaus Ecoregion (TNC Ecoregion 18) includes southern Utah Mountains
- Colorado Plateau Ecoregion (TNC Ecoregion 19) includes southeastern corner of Utah
- Great Basin Ecoregion (TNC Ecoregion 11) includes western have of Utah
- Mojave Desert Ecoregion (TNC Ecoregion 17) includes southwestern corner of Utah
- Wyoming Basin Ecoregion (TNC Ecoregion 10) includes northeastern corner of Utah
- Utah-Wyoming Rocky Mountains Ecoregion (TNC Ecoregion 9) includes mountains in northern Utah
- Columbia Plateau Ecoregion (TNC Ecoregion 6) includes extreme northwest corner of Utah

North American Waterfowl Management Plan - Great Salt Lake Project

This plan involves $1 million in federal funds with a commitment to match with $2 million through partnership (i.e., NAWCA) funded conservation activities for waterfowl on the Great Salt Lake. This plan is with Intermountain West Joint Venture's Great Salt Lake Focus Area Plan

North American Waterfowl Management Plan - Utah Lake Project

This plan involves $1 million in federal funds with a commitment to match with $2 million through partnership (i.e., NAWCA) funded, conservation activities for waterfowl on Utah Lake. This plan is consistent with Intermountain West Joint Venture's Utah Lake Focus Area Plan.

STATE PLANS

Utah Avian Conservation Strategy (Utah Partners in Flight)
http://www.wildlife.utah.gov/publications/pdf/utah_partners_in_flight.pdf

The plan is a comprehensive strategy for conservation and management of neotropical migrants in Utah and it prioritizes avian species and their habitats to set objectives to determine which are most in need of immediate and continuing conservation, as well as recommends appropriate conservation actions required to accomplish stated objectives. This document provides general information for hundreds of Utah's breeding birds and detailed information for over 20 species prioritized for conservation efforts and their habitats. It also provides detailed descriptions and maps of Utah's bird habitats. Publication sponsored by Partners in Flight.

Utah Shorebird and Waterbird (incomplete)

This plan will focus on the Great Salt Lake and Utah Lake areas but will include several important, outlying wetland areas. Plan development has been initiated; the plan will parallel the National and Great Basin Waterbird and Shorebird plans and will include input from local stakeholders.

State All Bird (Intermountain West Joint Venture - incomplete)

This habitat conservation strategy promotes the restoration and maintenance of bird populations in Utah, and fosters the protection, restoration, and enhancement of priority

habitats in the state and identifies focal areas of avian management importance. Utah's Implementation Bird Plan is based on national plans but plan objectives are specific to Utah's priority birds and their habitats.

Utah Important Bird Areas (Audubon)
http://www.audubon.org/bird/iba/utah/

IBA sites in Utah are designated based similar criteria as national sites. The are fifteen IBA sites in Utah including the five major bays on Great Salt Lake - Farmington, Ogden, Bear River, Gilbert (or South Arm), and Gunnison (or North Arm); Provo and Goshen Bay on Utah Lake; Cutler Marsh-Amalga Barrens in Cache County; the Upper Strawberry Watershed in Wasatch County; and, Lytle Preserve in Washington County, as well as Fish Springs National Wildlife Refuge, Ouray National Wildlife Refuge, Deseret Land and Livestock Ranch, Fremont River within Capitol Reef National Park, and Clear Lake Waterfowl Management Area.

Utah wildlife Habitat Incentives Program (WHIP) Plan (NRCS)

State Whip plans ensure that resources are targeted to the needs of the highest priority wildlife habitat. The plan will include information on State wildlife priorities, which may be expressed as habitat types of special concern and/or wildlife species to be targeted.

SPECIES-SPECIFIC DWR MANAGEMENT PLANS

Leatherside Chub (DWR – statewide, incomplete)

The Division is developing a state management plan for the southern population of the leatherside chub. An associated plan for managing the northern population together with counterparts in Idaho and Wyoming is being developed along the same format. The status of all populations is currently being determined, but appears reduced from historic levels.

Fat-whorled Pond Snail (DWR – statewide, incomplete)

The Division is developing a management plan for the fat-whorled pond snail, endemic to a few spring pools in Box Elder County along the northern shore of the Great Salt Lake. The management plan coordinates the efforts of other agencies and private parties.

Bighorn Sheep (DWR - statewide)
http://www.wildlife.utah.gov/hunting/biggame/pdf/bighorn_plan.pdf

This document provides a basis for management actions to be undertaken to restore bighorn sheep to their native habitat throughout Utah. The plans objectives are to establish optimum populations of bighorn sheep in all suitable habitat within the state, provide good quality habitat for healthy populations of bighorn sheep, and provide high quality opportunities for hunting and viewing of bighorn sheep.

Moose (DWR - statewide)
http://www.wildlife.utah.gov/hunting/biggame/pdf/moose_plan.pdf

The plan provides overall guidance and direction to Utah's moose management program. The plan assesses current information on moose; identifies issues and concerns relating to moose management in Utah; and establishes goals, objectives and strategies for future moose management programs.

Mountain Goat (DWR - statewide)
http://www.wildlife.utah.gov/hunting/biggame/pdf/rocky_mtn_goat_plan.pdf

This document provides a basis for mountain goat management throughout Utah with an emphasis on landscape level and ecosystem considerations. The plan introduces the natural history, management, and habitat of the species and addresses the controversy of goat transplant.

Mule Deer (DWR - statewide)
http://www.wildlife.utah.gov/hunting/biggame/pdf/mule_deer_plan.pdf

This document provides overall guidance and direction for Utah's management program for mule deer for five years. This plan describes general information on mule deer natural history, management, habitat, and population status, and discusses issues concerning mule deer management in Utah. Goals, objectives and strategies for managing mule deer populations are then identified.

Rocky Mountain Elk (DWR – statewide)
http://www.wildlife.utah.gov/public_meetings/march_rac/1.pdf

This document will provide overall guidance and direction for Utah's elk management program for five years from the date of approval by the Utah Wildlife Board. This plan briefly describes general information on elk natural history, management, habitat, and population status. It also discusses issues concerning elk management in Utah identified by the elk committee. Goals, objectives and strategies for managing elk populations are identified. The plan will be used to help set priorities for elk management programs and will provide overall guidance for individual unit management plans.

Black Bear (DWR – statewide)
http://www.wildlife.utah.gov/bear/pdf/00bearplan.pdf

The purpose of this document is to provide an assessment of black bear management, and provide direction for black bear management in Utah. Plan objectives include maintain or increasing current bear distribution and populations, minimizing loss in quality and quantity of critical and high priority bear habitat, and reducing the risk of human death or injury by bears.

Cougar (DWR – statewide)
http://www.wildlife.utah.gov/pdf/cmgtplan.pdf

This document provides overall guidance and direction for Utah's management program for cougar. This plan describes general information on cougar natural history, management, habitat, and population status, and discusses issues concerning cougar management in Utah. The goal of this plan is to maintain a healthy cougar population within existing occupied habitat while considering human safety, economic concerns, and other wildlife species.

Gray Wolf (DWR – statewide incomplete)

The purpose of this document is to guide management of wolves in Utah during an interim period until 2015, or we determine wolves have established in Utah, or assumptions of the plan (political, social, biological, or legal) change. During this interim period, arriving wolves will be studied to determine where they are most likely to settle without conflict. The goal of the plan is to manage, study, and conserve wolves moving into Utah while avoiding conflicts with the wildlife management objectives of the Ute Indian Tribe; preventing livestock depredation; and protecting the investment made in wildlife in Utah. The plan describes the general ecology of the gray wolf and outlines the strategies that will be employed to accomplish the purposes of the plan. This

plan will not go into effect until the gray wolf is removed from the Endangered Species list and management authority is transferred to the State of Utah.

Trumpeter Swan (Rocky Mountain – Pacific Flyway)
http://www.pacificflyway.gov/Documents/Tsip_plan.pdf

This plan seeks to restore the RMP as a secure and primarily migratory population with average annual growth. Management actions include redistribution of wintering swans to other wintering grounds, encouraging population growth in U.S. and Canadian flocks, increasing food resources in critical habitat, and implementing research and public education programs.

Tundra Swan (Western – Pacific Flyway)
http://www.pacificflyway.gov/Documents/Wts_plan.pdf

The goal of this plan is to ensure the maintenance of the Western Population of tundra swans at its current size and distribution. Objectives include providing suitable habitat, encourage maintenance of current population size and distribution, and provide for sustainable public uses, including education

Band-tailed Pigeon (Interior – Pacific Flyway)
http://pacificflyway.gov/Documents/Ibp_plan.pdf

The goal of this plan is to maintain the Four Corners band-tailed pigeon population at a level consistent with optimum distribution, density, and recreational uses. Plan objectives include maximizing potential for sustained consumptive and nonconsumptive uses and increasing habitat quality and quantity.

Sharp-tailed Grouse (DWR – statewide)
http://www.wildlife.utah.gov/uplandgame/pdf/02sharptail.pdf

This document outlines a management strategy to maintain Sharp-tailed Grouse populations in Utah through protection and restoration of remaining habitat and expansion of populations into secure habitat within former range. The goal of this conservation plan is to maintain and increase Columbian Sharp-tailed Grouse population levels within each management area, and reintroduce or establish populations within suitable habitats.

Sage-grouse (DWR – statewide)
http://www.wildlife.utah.gov/uplandgame/pdf/2002manplan.pdf

This plan seeks to protect, enhance, and conserve sage-grouse populations and sagebrush-steppe ecosystems through establishment of populations of sage-grouse in areas where they were historically found. The plan addresses current issues regarding management of this species.

River Otter Management Plan

The purpose of the Utah River Otter Management Plan is to provide direction for management of northern river otter in Utah and to expand the current distribution to its historic range. The plan describes the general ecology of the northern river otter, reviews research conducted on otters in Utah, and outlines the strategies that will be employed to accomplish the purposes of the plan.

"MANAGEMENT UNIT" MANAGEMENT PLANS (MULE DEER)

Management Units are subdivisions of geographical regions. Each unit employs a management strategy for big game species that is specific to the particular geographic features of the unit.

The thirty management units in Utah are listed by region below (along with a telephone contact number) and all units have completed an active management plan for mule deer.

Northern Region – Phone: 801-476-2740

1. Box Elder
2. Cache
3. Ogden
4. Morgan/Rich
5. East Canyon
6. Chalk Creek
7. Kamas

Northeastern Region – Phone: 435-781-9453

8. North Slope
9. South Slope
10. Book Cliffs

Southeastern Region – Phone: 435-636-0260

11. Nine Mile
12. San Rafael
13. La Sal
14. San Juan
15. Henry Mountains
16. Central Mountains

Central Region – Phone: 801-491-5678

17. Wasatch Mountains
18. Oquirrh-Stansbury
19. West Desert

Southern Region – Phone: 435-865-6100

20. Southwest Desert
21. Filmore
22. Beaver
23. Monroe
24. Mt. Dutton
25. Plateau
26. Kaiparowitz
27. Paunsaugunt
28. Panguitch Lake
29. Zion
30. Pine Valley

CONSERVATION AGREEMENTS, ASSESSEMENTS AND STRATEGIES

Least Chub Conservation Agreement and Strategy (CAS), 1998

The Division has been leading the efforts to conserve this species under the direction of partners in a Conservation Team. It occurs in a few small habitats along the Wasatch Front and in the West Desert of Utah. A six-year assessment documenting these efforts is being completed. The renewal of the CAS is being reviewed by the signatories and was anticipated in 2004.

Virgin Spinedace Conservation Agreement and Strategy, 2002
http://www.wildlife.utah.gov/pdf/virgspin.pdf

The Virgin spinedace is endemic to the Virgin River drainage of Utah where populations of the fish fluctuate but are generally holding steady at low levels. This CAS was originally signed in 1998 and was re-authorized in 2002. The Division has been leading the efforts to conserve this species under the direction of partners in a Conservation Team. Funding and cooperative efforts received from the Virgin River Resource Management and Recovery Team support the work specified in the Virgin Spinedace Conservation Agreement (CA).

Range-wide Conservation Agreement for Roundtail Chub, Bluehead Sucker, and Flannelmouth Sucker, 2004
http://www.wildlife.utah.gov/pdf/rcbsfs.pdf

With the support of the Colorado River Fish and Wildlife Council, the CA for these species was signed in 2004. This document directs that a Conservation Strategy and individual state management plans be developed. Utah is leading efforts to develop the Conservation Strategy and is pursuing development of the Utah State Management Plan for these species.

Bonneville Cutthroat Trout Conservation Agreement and Strategy 1997 *and* Range-Wide Conservation Agreement and Strategy, 2000

The UDWR leads and chairs the Bonneville Cutthroat Trout Conservation Committee in an effort to conserve this species that occurs in the Bonneville Basin in western Utah, southeast Idaho and northwest Nevada. Conservation efforts have been sufficient that the USFWS issued a finding in 2001 that listing of this species wasn't warranted. DWR is in the process of completing a five-year progress report for Utah and will write a new Conservation Agreement and Strategy for Utah. Those two documents should have been completed in 2004 or early 2005.

Colorado River Cutthroat Trout Conservation Agreement and Strategy, Utah, 1997 *and* Conservation Agreement and Strategy for Colorado River Cutthroat Trout in the States of Colorado, Utah and Wyoming, 2001

Utah DWR leads conservation efforts for this species in Utah and is a member of the Tri-State efforts in Colorado, Utah and Wyoming. Conservation efforts have been sufficient for the USFWS to issue a finding of Listing Not Warranted in 2004. The Tri-State group just completed a large effort to build a GIS database covering Colorado River cutthroat trout populations within the three states. Both documents will be reviewed within the next couple of years to further define where additional conservation efforts need to conducted.

Columbia Spotted Frog Conservation Agreement and Strategy, 1998
http://www.wildlife.utah.gov/pdf/spotfrog.pdf

The Division has been leading the efforts to conserve this species that occurs along the Wasatch Front and in the West Desert of Utah, then north to Alaska. Efforts to benefit the frog, under the direction of partners in a Conservation Team, were recently determined to be sufficient to allow for a determination of a not warranted for listing finding in response to petitioners. A six-year assessment documenting these efforts is being completed. The renewal of the CAS is being reviewed by the signatories and was anticipated in 2004.

Memorandum of Agreement for Conservation and Management of Yellowstone Cutthroat Trout among Montana, Idaho, Wyoming, Nevada, Utah, U.S. Forest Service, Yellowstone National Park and Grand Teton National Park, 2000

UDWR is a signatory to this MOA for the conservation of Yellowstone cutthroat trout. A very small portion of the historic range for Yellowstone cutthroat trout extends into northwest Utah. So far the USFWS has continued to find that listing of this species isn't warranted.

Northern Goshawk (USFS – statewide)
http://www.fs.fed.us/r4/goshawk/strategy.pdf

This document provides a management strategy for the Utah National Forests, Bureau of Land Management and the UDWR to maintain adequate nesting and foraging goshawk habitat which is well connected throughout the State in order to sustain a viable population of goshawks. The agreement and strategy is tiered to several technical documents also provided on the web site.

Gunnison Prairie Dog Conservation Assessment (Wester Association of Fish and Wildlife Agencies (WAFWA) rangewide - incomplete)

This report assesses the ecological status and limiting factors to Gunnison prairie dog conservation across their entire distribution using a large-scale approach. The Conservation Assessment includes background information on Gunnison prairie dogs and their habitats, information on the basic ecology of Gunnison prairie dogs, and a description of the current population status and distribution. This document will be followed by a rangewide conservation strategy.

White-tailed Prairie Dog Conservation Assessment (WAFWA - rangewide)

This report assesses the ecological status and limiting factors to white-tailed prairie dog conservation across their entire distribution using a large-scale approach. The Conservation Assessment includes background information on white-tailed prairie dogs and their habitats, information on the basic ecology of the white tailed prairie dog, and a description of the current population status and distribution. This document is being followed by a rangewide conservation strategy.

Greater Sage-grouse Rangewide Conservation Assessment (WAFWA)
http://sagemap.wr.usgs.gov/docs/Greater_Sage-grouse_Conservation_Assessment_060404.pdf

This report assesses the ecological status and potential factors that influence Greater Sage-grouse and sagebrush habitats across their entire distribution using a large-scale approach to identify regional patterns of habitat, disturbance, land use practices, and population trends. The Conservation Assessment includes background information on greater sage-grouse and sagebrush habitats, information on the basic ecology of greater sage-grouse and sagebrush habitats, a description of the current situation and trends in greater sage-grouse populations and the dominant factors that individually and cumulatively influence sagebrush habitats, and an integration of habitat and population trend information into a synthesis of the conservation status for greater sage-grouse and sagebrush ecosystems in western North America.

Gunnison Sage-grouse (DWR – statewide)
http://www.wildlife.utah.gov/uplandgame/pdf/gsgcp.pdf

This was initiated to conserve the species by reducing threats to the Gunnison Sage-grouse, stabilizing the population, and maintaining its ecosystem. This document's

primary purpose is to conserve this species by implementing voluntary conservation actions described in this plan.

Rangewide Gunnison Sage-grouse Conservation Plan (UDWR/Colorado Division of Wildlife - incomplete)

http://wildlife.state.co.us/species_cons/Gunnison_sage_grouse/index.asp

This comprehensive conservation plan was developed to protect, enhance, and conserve Gunnison Sage-grouse populations and their habitats, by providing a rangewide perspective, guidance and recommendations to local working groups and other interested or affected parties and stakeholders. The plan seeks to remove this species from federal listing consideration.

MONITORING PLANS

Coordinated Bird Monitoring

This plan provides quantitative objectives for addressing important avian and habitat management issues in Utah; it also identifies the best methods for collecting the needed information, provides estimated sample size requirements, identifies responsibilities for implementation, and makes recommendations on project management and the next steps toward implementation.

Peregrine Falcon Post-delisting

http://www.fs.fed.us/r4/goshawk/strategy.pdf

This plan was developed by the USFWS in cooperation with state and non-government agencies to determine the recovery of the Peregrine Falcon after federal delisting. Suggested research and monitoring efforts were designed to detect declines in territory occupancy, nest success, and productivity across the United States. Regional data for all population measures are to be combined to examine trends nationwide.

HABITAT PLANS

Shrubsteppe and Riparian Habitat Initiatives (DWR)

The Habitat Initiative targets shrub steppe and riparian areas for a variety of conservation measures and stresses active restoration, and the implementation of improved management practices to improve range trend in these two priority areas. The three strategies of this initiative are direct habitat restoration, enhancing and improving management policy, and communication outreach.

Box Elder County Comprehensive Wetlands Management Plan (1997)

http://137.77.133.41/wetlands/pdf/box_elder_wetland_conservation_plan.pdf

This management plan seeks to conserve and enhance the integrity and ensure perpetuation of the Great Salt Lake wetland ecosystem in Box Elder County, while incorporating provisions for appropriate urban development, infrastructure needs, resident livelihoods, and quality of life. It is a county-specific wetland protection plan detailing specific areas within the county, but countywide in scope.

Davis County Wetlands Conservation Plan (1996)

This plan proposes a more predictable approach to wetland regulation in Davis County, easing restrictions while conserving critical bands of wetlands. Thus, it aims to ease strains on private landowners while simultaneously ensuring better wetlands for future

generations. Plan objectives include wetland conservation, wetland education and outdoor recreation.

Great Salt Lake Comprehensive Management Plan. Great Salt Lake Planning Team. 2000 (May). Resource and Planning Documents
http://www.wildlife.utah.gov/gsl/gsl_cmp_resource_doc/gsl_cmp_resource_doc.pdf
http://www.wildlife.utah.gov/gsl/gsl_cmp_decision_doc/gsl_cmp_decision_doc.pdf

The purposes of the Great Salt Lake Planning project are to establish management objectives and policies, coordinate management, planning, and research, improve interregional coordination, develop a resource management plan, and establish processes for plan implementation. The Decision Document contains an overview of the planning process, implementation, monitoring and research, and goals and objectives. The Resource Document is the supporting reference for the Decision Document.

Utah Lake Wetland Preserve Plan (1994)

This plan was produced to guide acquisition and initial management of the Preserve. Goals include offsetting wetland loss, enhancing wildlife habitat, preserving natural areas, providing outdoor recreation, and promoting wetlands education and research.

OTHER STATEWIDE PLANS

Frontiers 2000—A System Plan to Guide Utah State Parks and Recreation Into the 21st Century. 1996. Utah Division of Parks and Recreation.

This cooperative plan outlines the future of recreation in Utah and stresses government improvement and the enhancement of the quality of life in the state through three general areas: parks, people, and programs. The plan addresses issues facing the parks, people, and programs and offers recommendations and implementation ideas specific to each issue.

State of Utah: Strategic Boating Plan. 2000 (April). Utah Division of Parks and Recreation, and Utah Boating Advisory Council.
http://www.stateparks.utah.gov/administration/planning/documents/FinalBoatPlanComplete.pdf

This plan was established to aid management of Utah's waters for quality recreation experiences and guide the stewardship of boating in the state. The vision of the Utah State Parks and Recreation Boating Program is a state boating authority that ensures quality facilities, educational opportunities, enforcement uniformity, training for boating law enforcement officers, productive partnerships, and making recommendations for boating practices.

Establishing a Legacy for Trails in Utah 2002-2004, A Public Planning Process. Salt Lake City, Utah. Division of Utah State Parks and Recreation

The objective of this initiative set forth by the governor was to improve the quality of life and outdoor recreation by building 715 miles of premier trails, open to hiking, off-roading, horseback riding and biking within a 15-minute drive of state citizen. Objectives included improving public access, agency coordination, economic benefits, and business growth.

U.S. Department of the Interior. 1989. Service National Wetlands Priority Conservation Plan (NWPCP). Washington, D.C.: U.S. Fish and Wildlife; preface.

The objective of the NWPCP is to assist agencies in focusing their acquisition efforts on important, scarce and vulnerable wetlands in the Nation, and to establish priorities for

wetlands protection that do not involve acquisition. The NWPCP applies only to wetlands that would be acquired by Federal agencies and States using Land and Water Conservation Fund (LWCF) appropriations.

Utah Department of Natural Resources, Division of Parks and Recreation. 2003. Utah State Comprehensive Outdoor Recreation Plan. SLC: Utah State Parks and Recreation, 107 pp.

The purposes of this plan (SCORP) include developing a strategic reference document, assisting outdoor recreation planning and management, proposing actions and goals, providing a citizen-input forum for suggestions, facilitating coordination for recreation development by multiple agencies and interests, and assisting decision-making. The SCORP includes a discussion of Utah's outdoor recreation resources and programs as they relate to the plan's purposes.

State Water Plan. 2001.Utah Division of Water Resources. Salt Lake City, UT. http://www.water.utah.gov/waterplan/uwrpff/Cover.htm

The plan estimates Utah's available water supply, makes projections of water need, explores how these needs will most efficiently be met, and discusses other important values, including water quality and the environment. The plan suggests implementing agricultural water transfers, agricultural water-use efficiency, conjunctive use, aquifer storage and recovery, secondary water systems, cooperative water operating agreements, and water reuse.

CHAPTER 5 . SPECIES OF GREATEST CONSERVATION NEED
(1st Element)

The Utah Division of Wildlife Resources (UDWR) has adopted a three-tiered system to group species in order of greatest conservation need (Table 5.1). The tiered ranking system defines and prioritizes Utah's native animal species according to conservation need. Additionally, species for which UDWR does not yet have sufficient information to make a determination of conservation status may also be on the list. Tier I includes federally Threatened and Endangered, federal Candidate, and Conservation Agreement species. These species are also listed on the State of Utah Sensitive Species List (see: www.wildlife.utah.gov/ucdc/ViewReports/sslist.htm). Most Tier I species have recovery plans or conservation agreements and associated strategies (see Chapter 4); a recovery plan is not required for federal candidates. In cooperation with agency and private partners, UDWR has initiated conservation agreements for a few of the federal Candidate species. Recovery plans and conservation agreements have been developed by multiple parties indicating the breadth of support among agencies and other interested parties for the actions required in these documents. The recovery plans and conservation agreements include recovery and/or conservation actions that are based on the best science available at the time of preparation, including species evaluation and recovery or conservation actions. The actions have been vetted by partners and are reviewed at regular intervals, usually on an annual schedule. Many actions for Tier I species are currently being implemented. When new information becomes available it is evaluated through peer review by the appropriate standing committees defined in the plans or agreements and actions are modified as determined by the committees.

The species on the Tier II list are generally equivalent to the Utah Species of Concern List (see: www.wildlife.utah.gov/ucdc/ViewReports/sslist.htm) (UDWR 2005), which is another subset of the State Sensitive Species List. The State of Utah rule establishing the Sensitive Species List required justification of the Species of Concern in individual species accounts. A panel of expert biologists from the UDWR was convened to develop the State Sensitive Species List. The information they considered included:

a. Species biology, life history
b. Population – abundance, conditions
c. Distribution
d. Threats

The panel developed a list of native Utah animal species that were believed to be of greatest conservation need based on these parameters. Agency reports, published peer reviewed literature, and personal knowledge were all used to support the list (see UDWR 2005 for comprehensive literature cited). Once this list was completed, it was cross-referenced with the Utah Natural Heritage rankings and a very high degree of correlation was observed. The correlation with the independently developed Natural Heritage rankings provided some measure of confirmation that the Species of Concern List was accurate. Species were either considered to be on the list or not; a numeric system was not developed as it would have required assignment of subjective values and so was not substantively different than the subjective, if well-informed, list that was ultimately developed.

The Species of Concern list was reviewed by an internal Utah Department of Natural Resources committee, chaired by the Director, edited in accord with their direction (especially to clarify and further support species accounts), and was subsequently approved. The list was presented to the Wildlife Board and approved in December 2004. By inclusion in the CWCS, additional partners now have the opportunity to review the Species of Concern List.

Tier III species were identified in the same process as that for Tier II species. The Tier III list includes species that are of conservation concern because they are linked to an at-risk habitat (e.g. mule deer) or there is little information available, especially information regarding the species' life history, population status, and threats. Accordingly, the primary action currently described for the Tier III species is to gather more information regarding their status and any threats to them or their habitats. The lack of information itself was deemed of sufficient importance to constitute a threat.

The tiered ranking system provides a foundation for the UDWR to return to on a regular basis throughout the life of the CWCS. It documents the UDWR's understanding of the state of native species. This foundation provides a perspective for managers to prioritize and evaluate their current activities for relevance to all native species and to help insure that species of conservation need are not neglected. It also provides a reference point for USFWS reviewers evaluating UDWR activities and proposals. The tabular format allows for ready reference, but also lends itself to updating as more information and data become available.

Species-specific distribution and abundance information is described briefly in Table 6.1. More detailed information can be found for Tier I species in USFWS Recovery Plans and UDWR Conservation Strategies (see Chapter 4). The Utah Sensitive Species List provides detailed information on Tier II species. A comprehensive review of most Tier III bird species is provided in the Utah Avian Conservation Strategy (Parrish et al. 2002). Status review of all other Tier III species is summarized for the first time in Table 6.1.

Table 5.1. Utah CWCS Tier I, II, and III Species List

Common Name	Scientific Name	Tier	Group	Primary Habitat	Secondary Habitat
Columbia Spotted Frog	*Rana luteiventris*	I	Amphibian	Wetland	Wet Meadow
Relict Leopard Frog - extirpated	*Rana onca*	I	Amphibian	Wetland	Water - Lotic
Northern Goshawk	*Accipiter gentilis*	I	Bird	Lodgepole Pine	Aspen
Gunnison Sage-grouse	*Centrocercus minimus*	I	Bird	Shrubsteppe	
Yellow-billed Cuckoo	*Coccyzus americanus*	I	Bird	Lowland Riparian	Agriculture
Southwestern Willow Flycatcher	*Empidonax traillii extimus*	I	Bird	Lowland Riparian	Mountain Riparian
Whooping Crane - extirpated	*Grus americana*	I	Bird	Wetland	Agriculture
California Condor	*Gymnogyps californianus*	I	Bird	Cliff	
Bald Eagle	*Haliaeetus leucocephalus*	I	Bird	Lowland Riparian	Agriculture
Mexican Spotted Owl	*Strix occidentalis lucida*	I	Bird	Cliff	Lowland Riparian
Least Chub	*Iotichthys phlegethontis*	I	Fish	Water - Lentic	Wetland
Virgin Spinedace	*Lepidomeda mollispinis mollispinis*	I	Fish	Water - Lotic	Lowland Riparian
Colorado River Cutthroat Trout	*Oncorhynchus clarki pleuriticus*	I	Fish	Water - Lotic	Mountain Riparian
Bonneville Cutthroat Trout	*Oncorhynchus clarki utah*	I	Fish	Water - Lotic	Mountain Riparian
Bluehead Sucker	*Catostomus discobolus*	I	Fish	Water - Lotic	Mountain Riparian
Flannelmouth Sucker	*Catostomus latipinnis*	I	Fish	Water - Lotic	
Roundtail Chub	*Gila robusta*	I	Fish	Water - Lotic	
June Sucker	*Chasmistes liorus*	I	Fish	Water - Lentic	Water - Lotic
Humpback Chub	*Gila cypha*	I	Fish	Water - Lotic	
Bonytail	*Gila elegans*	I	Fish	Water - Lotic	
Virgin River Chub	*Gila seminuda*	I	Fish	Water - Lotic	Lowland Riparian
Woundfin	*Plagopterus argentissimus*	I	Fish	Water - Lotic	
Colorado Pikeminnow	*Ptychocheilus lucius*	I	Fish	Water - Lotic	
Razorback Sucker	*Xyrauchen texanus*	I	Fish	Water - Lotic	
Lahontan Cutthroat Trout	*Oncorhynchus clarki henshawi*	I	Fish	Water - Lotic	Mountain Riparian
Black-footed Ferret	*Mustela nigripes*	I	Mammal	Grassland	High Desert Scrub
Utah Prairie-dog	*Cynomys parvidens*	I	Mammal	Grassland	Agriculture
Canada Lynx	*Lynx canadensis*	I	Mammal	Sub-Alpine Conifer	Lodgepole Pine
Brown (Grizzly) Bear - extirpated	*Ursus arctos*	I	Mammal	Mixed Conifer	Mountain Shrub
Gray Wolf - extirpated	*Canis lupus*	I	Mammal	Mountain Shrub	Mixed Conifer
Ogden Rocky Mountainsnail	*Oreohelix peripherica wasatchensis*	I	Mollusk	Mountain Shrub	Rock
Fat-whorled Pondsnail	*Stagnicola bonnevillensis*	I	Mollusk	Wetland	
Kanab Ambersnail	*Oxyloma kanabense*	I	Mollusk	Water - Lentic	Wetland

Common Name	Scientific Name	Tier	Group	Primary Habitat	Secondary Habitat
Desert Valvata - extirpated	*Valvata utahensis*	I	Mollusk	Water - Lentic	
Desert Tortoise	*Gopherus agassizii*	I	Reptile	Low Desert Scrub	
Western Toad	*Bufo boreas*	II	Amphibian	Wetland	Mountain Riparian
Arizona Toad	*Bufo microscaphus*	II	Amphibian	Lowland Riparian	Wetland
Grasshopper Sparrow	*Ammodramus savannarum*	II	Bird	Grassland	
Short-eared Owl	*Asio flammeus*	II	Bird	Wetland	Grassland
Burrowing Owl	*Athene cunicularia*	II	Bird	High Desert Scrub	Grassland
Ferruginous Hawk	*Buteo regalis*	II	Bird	Pinyon-Juniper	Shrubsteppe
Greater Sage-grouse	*Centrocercus urophasianus*	II	Bird	Shrubsteppe	
Black Swift	*Cypseloides niger*	II	Bird	Lowland Riparian	Cliff
Bobolink	*Dolichonyx oryzivorus*	II	Bird	Wet Meadow	Agriculture
Lewis's Woodpecker	*Melanerpes lewis*	II	Bird	Ponderosa Pine	Lowland Riparian
Long-billed Curlew	*Numenius americanus*	II	Bird	Grassland	Agriculture
American White Pelican	*Pelecanus erythrorhynchos*	II	Bird	Water - Lentic	Wetland
Three-toed Woodpecker	*Picoides tridactylus*	II	Bird	Sub-Alpine Conifer	Lodgepole Pine
Sharp-tailed Grouse	*Tympanuchus phasianellus*	II	Bird	Shrubsteppe	Grassland
Desert Sucker	*Catostomus clarki*	II	Fish	Water - Lotic	
Bear Lake Sculpin	*Cottus extensus*	II	Fish	Water - Lentic	
Leatherside Chub	*Gila copei*	II	Fish	Water - Lotic	Mountain Riparian
Yellowstone Cutthroat Trout	*Oncorhynchus clarki bouvieri*	II	Fish	Water - Lotic	Mountain Riparian
Bear Lake Whitefish	*Prosopium abyssicola*	II	Fish	Water - Lentic	
Bonneville Cisco	*Prosopium gemmifer*	II	Fish	Water - Lentic	
Bonneville Whitefish	*Prosopium spilonotus*	II	Fish	Water - Lentic	
Pygmy Rabbit	*Brachylagus idahoensis*	II	Mammal	Shrubsteppe	
Townsend's Big-eared Bat	*Corynorhinus townsendii*	II	Mammal	Pinyon-Juniper	Mountain Shrub
Gunnison's Prairie-dog	*Cynomys gunnisoni*	II	Mammal	Grassland	High Desert Scrub
White-tailed Prairie-dog	*Cynomys leucurus*	II	Mammal	Grassland	High Desert Scrub
Spotted Bat	*Euderma maculatum*	II	Mammal	Low Desert Scrub	Cliff
Allen's Big-eared Bat	*Idionycteris phyllotis*	II	Mammal	Lowland Riparian	Pinyon-Juniper
Western Red Bat	*Lasiurus blossevillii*	II	Mammal	Lowland Riparian	
Dark Kangaroo Mouse	*Microdipodops megacephalus*	II	Mammal	High Desert Scrub	Shrubsteppe
Mexican Vole	*Microtus mexicanus*	II	Mammal	Ponderosa Pine	Aspen
Fringed Myotis	*Myotis thysanodes*	II	Mammal	Northern Oak	Pinyon-Juniper
Big Free-tailed Bat	*Nyctinomops macrotis*	II	Mammal	Lowland Riparian	Cliff
Silky Pocket Mouse	*Perognathus flavus*	II	Mammal	Grassland	Shrubsteppe

Common Name	Scientific Name	Tier	Group	Primary Habitat	Secondary Habitat
Preble's Shrew	*Sorex preblei*	II	Mammal	Wetland	High Desert Scrub
Kit Fox	*Vulpes macrotis*	II	Mammal	High Desert Scrub	
California Floater	*Anodonta californiensis*	II	Mollusk	Water - Lotic	Water - Lentic
Western Pearlshell	*Margaritifera falcata*	II	Mollusk	Water - Lotic	Mountain Riparian
Southern Tightcoil	*Ogaridiscus subrupicola*	II	Mollusk	Rock	High Desert Scrub
Eureka Mountainsnail	*Oreohelix eurekensis*	II	Mollusk	Mountain Shrub	Rock
Lyrate Mountainsnail	*Oreohelix haydeni*	II	Mollusk	Mountain Shrub	Rock
Brian Head Mountainsnail	*Oreohelix parawanensis*	II	Mollusk	Mountain Shrub	Rock
Deseret Mountainsnail	*Oreohelix peripherica*	II	Mollusk	Mountain Shrub	Rock
Yavapai Mountainsnail	*Oreohelix yavapai*	II	Mollusk	Aspen	Rock
Cloaked Physa	*Physa megalochlamys*	II	Mollusk	Wetland	
Utah Physa	*Physella utahensis*	II	Mollusk	Wetland	
Wet-rock Physa	*Physella zionis*	II	Mollusk	Cliff	Wetland
Longitudinal Gland Pyrg	*Pyrgulopsis anguina*	II	Mollusk	Wetland	
Smooth Glenwood Pyrg	*Pyrgulopsis chamberlini*	II	Mollusk	Wetland	
Desert Springsnail	*Pyrgulopsis deserta*	II	Mollusk	Wetland	
Otter Creek Pyrg	*Pyrgulopsis fusca*	II	Mollusk	Wetland	
Hamlin Valley Pyrg	*Pyrgulopsis hamlinensis*	II	Mollusk	Wetland	
Carinate Glenwood Pyrg	*Pyrgulopsis inopinata*	II	Mollusk	Wetland	
Ninemile Pyrg	*Pyrgulopsis nonaria*	II	Mollusk	Wetland	
Bifid Duct Pyrg	*Pyrgulopsis peculiaris*	II	Mollusk	Wetland	
Bear Lake Springsnail	*Pyrgulopsis pilsbryana*	II	Mollusk	Wetland	
Black Canyon Pyrg	*Pyrgulopsis plicata*	II	Mollusk	Wetland	
Sub-globose Snake Pyrg	*Pyrgulopsis saxatilis*	II	Mollusk	Wetland	
Southern Bonneville Pyrg	*Pyrgulopsis transversa*	II	Mollusk	Wetland	
Northwest Bonneville Pyrg	*Pyrgulopsis variegata*	II	Mollusk	Wetland	
Zebra-tailed Lizard	*Callisaurus draconoides*	II	Reptile	Low Desert Scrub	Shrubsteppe
Western Banded Gecko	*Coleonyx variegatus*	II	Reptile	Low Desert Scrub	Pinyon-Juniper
Sidewinder	*Crotalus cerastes*	II	Reptile	Low Desert Scrub	
Speckled Rattlesnake	*Crotalus mitchellii*	II	Reptile	Low Desert Scrub	
Mojave Rattlesnake	*Crotalus scutulatus*	II	Reptile	Low Desert Scrub	
Desert Iguana	*Dipsosaurus dorsalis*	II	Reptile	Low Desert Scrub	
Cornsnake	*Elaphe guttata*	II	Reptile	Lowland Riparian	Pinyon-Juniper
Gila Monster	*Heloderma suspectum*	II	Reptile	Low Desert Scrub	
Western Threadsnake	*Leptotyphlops humilis*	II	Reptile	Lowland Riparian	Low Desert Scrub

Common Name	Scientific Name	Tier	Group	Primary Habitat	Secondary Habitat
Smooth Greensnake	*Opheodrys vernalis*	II	Reptile	Mountain Riparian	Wet Meadow
Common Chuckwalla	*Sauromalus ater*	II	Reptile	High Desert Scrub	Low Desert Scrub
Desert Night Lizard	*Xantusia vigilis*	II	Reptile	Low Desert Scrub	Pinyon-Juniper
Plains Spadefoot	*Spea bombifrons*	III	Amphibian	Pinyon-Juniper	Grassland
Mexican Spadefoot	*Spea multiplicata*	III	Amphibian	Pinyon-Juniper	Grassland
Great Plains Toad	*Bufo cognatus*	III	Amphibian	High Desert Scrub	Grassland
Pacific Treefrog	*Pseudacris regilla*	III	Amphibian	Lowland Riparian	Mountain Riparian
Northern Leopard Frog	*Rana pipiens*	III	Amphibian	Wetland	Lowland Riparian
Canyon Treefrog	*Hyla arenicolor*	III	Amphibian	Lowland Riparian	Water - Lotic
Snowy Plover	*Charadrius alexandrinus*	III	Bird	Playa	
Boreal Owl	*Aegolius funereus*	III	Bird	Sub-Alpine Conifer	
Gray Flycatcher	*Empidonax wrightii*	III	Bird	Pinyon-Juniper	High Desert Scrub
Sage Thrasher	*Oreoscoptes montanus*	III	Bird	Shrubsteppe	High Desert Scrub
Band-tailed Pigeon	*Columba fasciata*	III	Bird	Ponderosa Pine	Mixed Conifer
Peregrine Falcon	*Falco peregrinus*	III	Bird	Cliff	Lowland Riparian
Bell's Vireo	*Vireo bellii*	III	Bird	Lowland Riparian	
Bendire's Thrasher	*Toxostoma bendirei*	III	Bird	Low Desert Scrub	
Black-billed Cuckoo	*Coccyzus erythropthalmus*	III	Bird	Mountain Riparian	
Broad-tailed Hummingbird	*Selasphorus platycercus*	III	Bird	Lowland Riparian	Mountain Riparian
Caspian Tern	*Sterna caspia*	III	Bird	Playa	Water - Lentic
Crissal Thrasher	*Toxostoma crissale*	III	Bird	Low Desert Scrub	Lowland Riparian
Osprey	*Pandion haliaetus*	III	Bird	Water - Lentic	Water - Lotic
Williamson's Sapsucker	*Sphyrapicus thyroideus*	III	Bird	Sub-Alpine Conifer	Aspen
Gambel's Quail	*Callipepla gambelii*	III	Bird	Low Desert Scrub	Lowland Riparian
Abert's Towhee	*Pipilo aberti*	III	Bird	Lowland Riparian	
American Avocet	*Recurvirostra americana*	III	Bird	Wetland	Playa
Black Rosy-finch	*Leucosticte atrata*	III	Bird	Alpine	Grassland
Black-necked Stilt	*Himantopus mexicanus*	III	Bird	Wetland	Playa
Black-throated Gray Warbler	*Dendroica nigrescens*	III	Bird	Pinyon-Juniper	Mountain Shrub
Brewer's Sparrow	*Spizella breweri*	III	Bird	Shrubsteppe	High Desert Scrub
Gray Vireo	*Vireo vicinior*	III	Bird	Pinyon-Juniper	Northern Oak
Lucy's Warbler	*Vermivora luciae*	III	Bird	Lowland Riparian	Low Desert Scrub
Sage Sparrow	*Amphispiza belli*	III	Bird	Shrubsteppe	High Desert Scrub
Virginia's Warbler	*Vermivora virginiae*	III	Bird	Northern Oak	Pinyon-Juniper
Mountain Plover	*Charadrius montanus*	III	Bird	High Desert Scrub	

Common Name	Scientific Name	Tier	Group	Primary Habitat	Secondary Habitat
Utah Chub	*Gila atraria*	III	Fish	Water - Lotic	Lowland Riparian
Redside Shiner	*Richardsonius balteatus*	III	Fish	Water - Lotic	Lowland Riparian
Speckled Dace	*Rhinichthys osculus*	III	Fish	Water - Lotic	Lowland Riparian
Longnose Dace	*Rhinichthys cataractae*	III	Fish	Water - Lotic	Mountain Riparian
Paiute Sculpin	*Cottus beldingi*	III	Fish	Water - Lotic	Mountain Riparian
Utah Lake Sculpin - extinct	*Cottus echinatus*	III	Fish	Water - Lentic	
Utah Sucker	*Catostomus ardens*	III	Fish	Water - Lotic	Lowland Riparian
Olive-backed Pocket Mouse	*Perognathus fasciatus*	III	Mammal	Shrubsteppe	Grassland
Wyoming Ground Squirrel	*Spermophilus elegans*	III	Mammal	Shrubsteppe	High Desert Scrub
Bighorn Sheep	*Ovis canadensis*	III	Mammal	High Desert Scrub	Shrubsteppe
Mule Deer	*Odocoileus hemionus*	III	Mammal	Shrubsteppe	Mountain Shrub
Northern Flying Squirrel	*Glaucomys sabrinus*	III	Mammal	Sub-Alpine Conifer	
Idaho Pocket Gopher	*Thomomys idahoensis*	III	Mammal	Grassland	Shrubsteppe
Desert Shrew	*Notiosorex crawfordi*	III	Mammal	Low Desert Scrub	Mountain Shrub
Dwarf Shrew	*Sorex nanus*	III	Mammal	Sub-Alpine Conifer	Alpine
Merriam's Shrew	*Sorex merriami*	III	Mammal	Shrubsteppe	Grassland
Yuma Myotis	*Myotis yumanensis*	III	Mammal	Lowland Riparian	Low Desert Scrub
American Pika	*Ochotona princeps*	III	Mammal	Alpine	Mountain Shrub
Abert’s Squirrel	*Sciurus aberti*	III	Mammal	Ponderosa Pine	
Thirteen-lined Ground Squirrel	*Spermophilus tridecemlineatus*	III	Mammal	Grassland	
Spotted Ground Squirrel	*Spermophilus spilosoma*	III	Mammal	Grassland	High Desert Scrub
Desert Kangaroo Rat	*Dipodomys deserti*	III	Mammal	Low Desert Scrub	
Northern Rock Mouse	*Peromyscus nasutus*	III	Mammal	Rock	Pinyon-Juniper
American Marten	*Martes americana*	III	Mammal	Sub-Alpine Conifer	Lodgepole Pine
Wolverine	*Gulo gulo*	III	Mammal	Sub-Alpine Conifer	
Northern River Otter	*Lontra canadensis*	III	Mammal	Mountain Riparian	Lowland Riparian
Stephen's Woodrat	*Neotoma stephensi*	III	Mammal	Pinyon-Juniper	Rock
Mill Creek Mountainsnail	*Oreohelix howardi*	III	Mollusk	Mixed Conifer	
Ribbed Dagger	*Pupoides hordaceus*	III	Mollusk	Lowland Riparian	
Sluice Snaggletooth	*Gastrocopta ashmuni*	III	Mollusk	Lowland Riparian	
Montane Snaggletooth	*Gastrocopta pilsbryana*	III	Mollusk	Mountain Riparian	
Cross Snaggletooth	*Gastrocopta quadridens*	III	Mollusk	Mountain Riparian	
Creeping Ancylid	*Ferrissia rivularis*	III	Mollusk	Wetland	
Ovate Vertigo	*Vertigo ovata*	III	Mollusk	Pinyon-Juniper	
Black Gloss	*Zonitoides nitidus*	III	Mollusk	Mountain Riparian	

Common Name	Scientific Name	Tier	Group	Primary Habitat	Secondary Habitat
Rocky Mountain Duskysnail	*Colligyrus greggi*	III	Mollusk	Wetland	
Glossy Valvata	*Valvata humeralis*	III	Mollusk	Wetland	Water - Lentic
Glass Physa	*Physa skinneri*	III	Mollusk	Wetland	Water - Lentic
Sharp Sprite	*Promenetus exacuous*	III	Mollusk	Wetland	Water - Lentic
Plateau Striped Whiptail	*Aspidoscelis velox*	III	Reptile	Pinyon-Juniper	Desert Oak
Many-lined Skink	*Eumeces multivirgatus*	III	Reptile	Ponderosa Pine	Mountain Shrub
Western Skink	*Eumeces skiltonianus*	III	Reptile	Pinyon-Juniper	Mountain Shrub
Long-nosed Leopard Lizard	*Gambelia wislizenii*	III	Reptile	Low Desert Scrub	High Desert Scrub
Lesser Earless Lizard	*Holbrookia maculata*	III	Reptile	Low Desert Scrub	Grassland
Spotted Leaf-nosed Snake	*Phyllorhynchus decurtatus*	III	Reptile	Low Desert Scrub	
Sonora Mountain Kingsnake	*Lampropeltis pyromelana*	III	Reptile	Pinyon-Juniper	Mountain Riparian
Milksnake	*Lampropeltis triangulum*	III	Reptile	High Desert Scrub	Shrubsteppe
Rubber Boa	*Charina bottae*	III	Reptile	Mountain Riparian	Mixed Conifer
Common Kingsnake	*Lampropeltis getula*	III	Reptile	Low Desert Scrub	Pinyon-Juniper
Coachwhip	*Masticophis flagellum*	III	Reptile	Grassland	Low Desert Scrub
Smith's Black-headed Snake	*Tantilla hobartsmithi*	III	Reptile	Low Desert Scrub	Lowland Riparian
Common Gartersnake	*Thamnophis sirtalis*	III	Reptile	Wetland	Wet Meadow
Western Patch-nosed Snake	*Salvadora hexalepis*	III	Reptile	Low Desert Scrub	
Nightsnake	*Hypsiglena torquata*	III	Reptile	Pinyon-Juniper	High Desert Scrub
Western Lyresnake	*Trimorphodon biscutatus*	III	Reptile	Low Desert Scrub	Lowland Riparian
Long-nosed Snake	*Rhinocheilus lecontei*	III	Reptile	High Desert Scrub	Shrubsteppe
Glossy Snake	*Arizona elegans*	III	Reptile	Grassland	Low Desert Scrub
Black-necked Garter Snake	*Thamnophis cyrtopsis*	III	Reptile	Lowland Riparian	
Ring-necked Snake	*Diadophis punctatus*	III	Reptile	Pinyon-Juniper	Shrubsteppe
Groundsnake	*Sonora semiannulata*	III	Reptile	Low Desert Scrub	

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CHAPTER 6 . THREATS AND CONSERVATION ACTIONS FOR UTAH'S CWCS SPECIES

(Partially addressing Elements 3 and 4)

In this chapter, we provide descriptions of problems (i.e., threats) that adversely affect Utah's Species with the Greatest Conservation Need. We also present conservation actions that will be used to address those problems. While we have separate chapters for habitats and species, these two factors are closely associated and when possible, we have been consistent in our treatment of both threats and conservation actions for both habitats and species. Furthermore, our recommended conservation actions for habitats and species are intricately linked.

We have developed a list of general threats that potentially impact Utah's species (these are provided at the start of Table 6.1). For each of the animal species, we assign one or more general threat categories and then provide more detailed, yet concise, descriptions of the Specific Threats affecting each species. We also provide both general conservation actions and specific conservation actions that will help address the threats and conserve the affected species. Finally, we prioritize Specific Conservation Actions for implementation within species groups (e.g., birds, mammals, fishes) into High, Medium and Low priority categories. We treat research and survey efforts as a type of conservation action that may address several threats, however the lack of information is the predominant relevant threat; thus, research and survey efforts and other conservation actions are all prioritized in Table 6.1.

Table 6.1 is structured to allow the reader to relate the species biology, life history, abundance and distribution to the factors that threaten the species (as well as its primary or secondary habitat) to the actions recommended to address those threats. It also provides a priority for the implementation of each conservation action. Table 6.1 includes only Tier II and Tier III species. Because the status, threats, and associated actions for Tier I species are exhaustively reviewed in the species' associated recovery and conservation plan documents, they are not presented here.

Table 6.1. Species Accounts for Utah's Species of Greatest Conservation Need

General Threats

Development: the construction of buildings, subdivisions, roads, and other structures associated with human habitation/use; includes agricultural, industrial, and residential impacts
Disease: an impairment of health on a scale sufficient or potentially sufficient to affect a species on the population level. The disease may be caused by bacteria, viruses, parasites, prions, fungi, or other pathogen
Energy Development: the construction of well pads, roads, and other structures associated with oil/natural gas extraction or coal mining
Environmental Contamination: the presence of harmful substances resulting from pollution or poisoning
Habitat Loss: this includes destruction, degradation and fragmentation of habitat
Harvest: population impacts resulting from unregulated, poorly regulated, or illegal harvest
High Percent of Global Population: a large proportion of a species occurs in Utah; a loss of the Utah population would seriously threaten the global population
Human Disturbance: refers to disruption caused by human presence leading to breeding site abandonment, increased risk of predation (e.g., bird flushed from nesting cover) or other behavioral disruptions leading, cumulatively, to population impacts
Hybridization: loss of genetic integrity from crossing with other taxa
Invasive Animal Species: invasion by an animal species (usually non-native or naturalized) which disrupts native populations or habitats, e.g., House Sparrow, carp, red fox
Invasive Plant Species: invasion by a plant species (usually non-native or naturalized) which disrupts native habitats, e.g., cheatgrass, tamarisk, phragmites
Lack of Information: there is an indication of a threat to the species, population, or habitat, but there is not sufficient credible scientific evidence to substantiate the threat. This also includes the special case where there is an ongoing taxonomic debate
Limited Distribution: species occurs in limited areas and/or numbers
Limited Habitat: species occurs in a restricted, declining, much reduced, or specialized habitat
Nest Parasitism: loss of productivity resulting from parasitic species such as the Brown-headed Cowbird
Water Development: altering natural water flows through diversion, storage, pumping, and/or conveyance activities

General Conservation Actions

Conserve Suitable Habitat: manage suitable (possibly unoccupied) habitats to maintain suitability
Control and Monitor Contaminants: determine response of species to environmental contaminants, monitor and regulate contaminant levels in cooperation with state and federal agencies.
Control and Monitor Disturbance: determine response of species to human disturbance and, if necessary, control the disturbance through regulation and enforcement (e.g., season closures, permanent restrictions, buffer zones, enforce existing regulations, etc.)
Control and Monitor Invasive Species: determine effects of invasive species on native species/habitats and if necessary control (e.g., trap and remove cowbirds, cut and spray tamarisk)
Determine and Map Distribution: survey for suitable habitats and occurrence of species; record results in GIS compatible format
Determine and Address Factors Limiting Recovery: determine which anthropogenic and natural factors limit (both currently and long-term) population growth and address those factors through management (e.g., provide in-stream cover for native fish if cover is limiting, modify grazing regimes if habitat is negatively affected, provide nest boxes if natural cavities are limiting)
Education and Outreach: develop public awareness and solicit public support; increase communication and cooperation of partnering agencies, private landowners and NGOs
Habitat Monitoring and Research: determine response of species to habitat changes as well as habitat restoration projects through well designed monitoring and research programs (e.g., before-after-control-impact monitoring of shrubsteppe restoration treatments)
Implement Existing Conservation Plan(s): a detailed management plan or plans already exist for the species and the plan(s) needs to be implemented
Increase Distribution: artificial enhancement of populations through captive breeding and/or transplants
Permanent Conservation of Habitat: fee title acquisitions or conservation easements
Population Monitoring and Research: this includes monitoring and research on productivity, survival, population trends and other demographic and population factors
Protect Significant Areas: protect areas important to breeding, foraging, migrating, wintering, and other life history aspects
Restore Degraded Habitats: manage previously or potentially suitable habitat to achieve or approach properly functioning condition (e.g., restore stream sinuosity and channel profiles, plant desirable vegetation, reintroduce natural disturbance regimes to plant communities)
Test and Monitor Disease: capture and test species for presence of disease, monitor population response to disease outbreaks and control effects through, for example, treatment, inoculation or removal of afflicted individuals

Amphibians and Reptiles

Arizona Toad *Bufo microscaphus* Tier II Amphibian	**Biology and Life History**	**Population**	**Distribution**
	Inhabits lowland riparian habitat.	Locally abundant.	Southern portion of Utah. Concentrated within the Virgin River basin in Washington County but also known from Kane and Iron Counties.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Water Development	Reduction of native vegetation and extent of riparian corridors due to agricultural and municipal withdrawals	Protect Significant Areas	Prioritize and protect undisturbed riparian areas; seek opportunities to recover disturbed areas	M
Hybridization	Hybridizing with Woodhouse's toad	Population Monitoring and Research	Determine amount of introgression and degree of threat. If diversity being lost may need propagation.	L

Black-necked Garter Snake *Thamnophis cyrtopsis* Tier III Reptile	**Biology and Life History**	**Population**	**Distribution**
	Primarily a stream snake along foothills; however, habitats vary from desert to forest pine or fir.	Population size and trends not well documented, but anecdotal information suggests this species is common.	mostly southeast Utah and southeast Colorado to western-centeral Guatemala

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Complete distribution in UT unknown	Determine and Map Distribution	Determine extent of distribution	M
Lack of information	Population status unknown	Population Monitoring and Research	Determine population status and trends	L

Canyon Treefrog *Hyla arenicolor* Tier III Amphibian	**Biology and Life History**	**Population**	**Distribution**
	Primarily inhabits lowland riparian areas. Occurs close to rocky washes, streams and permanent pool in arid areas).	Population size and trends unknown.	western Colorado and southern Utah south to northern Oaxaca

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	May have limited distribution in UT	Determine and Map Distribution	Surveys for species in southern UT are needed; determine extent of distribution	M
Water Development	Reduced riparian areas and water sources in arid areas may negatively affect species	Control and Monitor Disturbance	Determine threats, if any	M
Disease	Chytridiomycosis (chytrid fungus) may negatively affect populations	Monitor Disease	Monitor populations and submit samples for testing if signs of chytrid observed	M

Coachwhip *Masticophis flagellum* Tier III Reptile	**Biology and Life History**	**Population**	**Distribution**
	Inhabits open, arid habitats at lower elevations. Active diurnal predator.	Populations restricted to one county in Utah. Population trend unknown.	Occurs only in the lower elevations in Washington County and along the canyons of the Colordo River in south-central Utah, but there have been limited sightings

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	May have limited distribution in UT	Determine and Map Distribution	Surveys for species in southwest UT are needed to determine extent of distribution	M

Common Chuckwalla *Sauromalus ater* Tier II Reptile	**Biology and Life History**	**Population**	**Distribution**
	Inhabits creosote-bursage, blackbrush and salt desert scrub.	Population size and trends unknown.	southern part of Washington County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human Disturbance	Recreation and predation by domestic animals	Protect Significant Areas	Prioritize and protect undisturbed areas	H
Harvest	Subject to illegal collection	Education and Outreach	Increase education efforts through schools, parks, etc.	M

Common Gartersnake *Thamnophis sirtalis* Tier III Reptile	**Biology and Life History**	**Population**	**Distribution**
	Primary habitat is grasslands, but this species can also be found in woodlands and forest where water is present.	Population size and trends unknown, but anecdotal information suggests this species is common.	wide range from the Pacific to the Atlantic Coast and from southeast Alaska and south Canada to the Gulf Coast

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Status in UT unknown	Determine and Map Distribution	Determine extent of distribution in UT	L

Common Kingsnake *Lampropeltis getula* Tier III Reptile	**Biology and Life History**	**Population**	**Distribution**
	Occurs in diverse habitats from desert shrub adjacent to agricultural areas to farmlands, canyons and warmer washes.	Locally common within its range in southern part of Utah. Population trend unknown.	Occurs acrros southern Utah reaching as far north as Wayne County. Abundant to the south and west of Zion National Park.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Status in UT unknown	Population Monitoring and Research	Determine status and trends	M
Harvest	Subject to illegal collection	Protect Significant Areas	Protect known habitats and continue review of legal protection	M

Cornsnake *Elaphe guttata* Tier II Reptile	**Biology and Life History**	**Population**	**Distribution**
	Prefers riparian habitats near streams or river margins.	Population size and trends unknown.	western Colorado and eastern Utah

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human disturbance	May be threatened by agriculture, municipal development	Protect Significant Areas	Prioritize and protect undisturbed areas	L
Lack of Information	Taxanomic debate about disjunct population; may be distinct species	Population Monitoring and Research	Study needed to clarify taxonomy	L
Harvest	Subject to illegal collection	Education and Outreach	Increase educational efforts in schools, parks, etc.	L

Desert Iguana *Dipsosaurus dorsalis* Tier II Reptile	**Biology and Life History**	**Population**	**Distribution**
	Found in creosote-bursage desert.	Population size and trends unknown.	Southwest corner of Washington County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human disturbance	Recreation and predation by domestic animals	Protect Significant Areas	Prioritize and protect undisturbed areas	H
Development	Municipal and utility development disturbs and in some cases eliminates available habitat	Protect significant areas	Prioritize and protect undisturbed areas	M
Harvest	Subject to illegal collection	Education and Outreach	Increase education efforts in schools, parks, etc.	M

Desert Night Lizard *Xantusia vigilis* Tier II Reptile	**Biology and Life History**	**Population**	**Distribution**
	Inhabits arid and semiarid rocky areas.	Population size and trends unknown.	southwestern part of Washington County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human disturbance	Recreation an increased predation by domestic animals	Protect Significant Areas	Prioritize and protect undisturbed areas	H
Development	Municipal and utility development disturbs and in some cases eliminates available habitat	Protect Significant Areas	Prioritize and protect undisturbed areas; seek opportunities for habitat restoration	L
Harvest	Subject to illegal collection	Education and Outreach	Increase education efforts	M

Gila Monster *Heloderma suspectum* Tier II Reptile	**Biology and Life History**	**Population**	**Distribution**
	Inhabits rocky canyon bottoms or washes.	Population size and trends unknown.	localized portions of Washington County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human disturbance	Recreation and increased predation by domestic animals	Protect Significant Areas	Prioritize and protect undisturbed areas	H
Development	Municipal and industrial development eliminating available habitat	Protect Significant Areas	Prioritize and protect undisturbed areas; seek habitat restoration opportunities	L
Harvest	Subject to illegal collection	Education and Outreach	Complete and distribute educational brochure	M

Glossy Snake *Arizona elegans* Tier III Reptile	**Biology and Life History**	**Population**	**Distribution**
	Occurs in desert scrub habitat, including those dominated by creosote buch or balckbrush, with sandy substrate.	Known to occur in 4 counties. Population trends unknown. Species is secretive and difficult to detect.	Occurs in southern Washington and Kane Counties and southwestern Garfield and San Juan Counties.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	May have limited distribution in UT	Determine and Map Distribution	Surveys for species in southern UT are needed	M
Lack of Information	Taxanomic dabate regarding the classification of populations as species or subspecies	Population Monitoring and Research	Include in taxonomic research by qualified researcher	L
Lack of information	Population status and trends unknown	Population Monitoring and Research	Determine population status and trends	M

Great Plains Toad *Bufo cognatus* Tier III Amphibian	**Biology and Life History**	**Population**	**Distribution**
	Inhabits prairie grasslands and dry, bushy areas. Breeding is dependent on rainfall.	Population size and trends unknown.	south and central Utah

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	May have limited distribution in UT	Determine and Map Distribution	Surveys for species in southeast UT are needed	M
Development	Agricultural, municipal, and utility development may all negatively affect by reducing available habitat	Control and Monitor Disturbance	Provide protected areas, if needed	M
Water Development	Development of water resources may negatively affect	Control and Monitor Disturbance	Determine distribution and compare extent to planned water development, if any	L

Groundsnake *Sonora semiannulata* Tier III Reptile	**Biology and Life History**	**Population**	**Distribution**
	Preferes lower elevations with gravelly soil and sparse vegetation. Species is fossorial and requires loose soils. Also found in rocky habitat.	Population size and trend information not available. Species is extremely secretive.	Mostly recorded in Washington County with disjunct population in east Kane County. Also occurs in scattered localities in southern and eastern Utah. Possibly extirpated from Carbon and Unitah Counties since no specimens have been documented for several decades.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Status in UT unknown	Population Monitoring and Research	Determine status, trends, and threats	M
Development	Urban expansion in Washington County	Control and Monitor Disturbance	Provide protected areas, if needed	M
Environmental Contaminant	Pesticide poisoning due to consumption of insects	Control and Monitor Disturbance	Develop outreach to reduce poisoning, if needed	L

Lesser Earless Lizard *Holbrookia maculata* Tier III Reptile	**Biology and Life History**	**Population**	**Distribution**
	Usually found in habitats that are flat, sparsley vegetated and sandy.	Population trend unknown. Not detected in state since 1927.	One speciemen collected in 1927 in southern San Juan County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	May have limited distribution in UT	Determine and Map Distribution	Surveys for species in southeast UT are needed	L

Long-nosed Leopard Lizard *Gambelia wislizenii* Tier III Reptile	**Biology and Life History**	**Population**	**Distribution**
	Primarily found in low desert scrub where sand dunes with clumps of rabbit brush are a favored habitat.	Population size and trends unknown.	wide range through all of western Utah and the Great Basin

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Status in UT unknown	Determine and Map Distribution	Determine extent of distribution	M

Long-nosed Snake *Rhinocheilus lecontei* Tier III Reptile	**Biology and Life History**	**Population**	**Distribution**
	Prefers desert or prairie habitats.	Population size and trends unknown.	from southwest Idaho and southeast Colorado to central Baja California

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Status in UT unknown	Determine and Map Distribution	Determine extent of distribution in UT	L

Many-lined Skink *Eumeces multivirgatus* Tier III Reptile	**Biology and Life History**	**Population**	**Distribution**
	Species is restricted to higher elevations and montane habitat.	Only one documented population. Population trend unknown.	Known only to occur in the Abajo Mountains (San Juan County).

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Status in UT unknown	Population Monitoring and Research	Determine status, trends, and threats	M
Habitat Loss	Habitat degradation through livestock overgrazing	Permanent Conservation of Habitat	Work with agencies and/or landowners to provide high-quality protected habitat, likely with fencing	M

Mexican Spadefoot *Spea multiplicata* Tier III Amphibian	**Biology and Life History**	**Population**	**Distribution**
	Arid and semiarid areas. Breeding is dependent on rainfall.	Population size and trends unknown.	southeastern part of Utah

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	May have limited distribution in UT	Determine and Map Distribution	Surveys for species in southeast UT are needed	M
Water Development	Withdrawls may negatively impact populations	Control and Monitor Disturbance	Determine degree of impact of water withdrawls on populations	M
Lack of information	Population status and trends not well known	Population Monitoring and Research	Determine population status, trends, and threats	M

Milksnake *Lampropeltis triangulum* Tier III Reptile	**Biology and Life History**	**Population**	**Distribution**
	Primarily in short-grass prairie or in covered grasslands.	Population size and trends unknown.	wide distribution from Canada to Ecuador and Atlantic coast to central Utah

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Status in UT unknown	Population Monitoring and Research	Determine status, trends, and threats	H
Harvest	Subject to illegal collection	Education and Outreach	Continue to work with volunteers surveying; analyze and integrate volunteer data	H

Mojave Rattlesnake *Crotalus scutulatus* Tier II Reptile	**Biology and Life History**	**Population**	**Distribution**
	Found in scattered scrubby growth.	Population size and trends unknown.	Beaver Dam Slope of Washinton County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human Disturbance	Recreation, persecution, and some collection pressure	Protect Significant Areas	Prioritize and protect undisturbed areas	H
Habitat Loss	Habitat destruction and fragmentation	Permanent Conservation of Habitat	Protect available and suitable habitat	M

Nightsnake *Hypsiglena torquata* Tier III Reptile	**Biology and Life History**	**Population**	**Distribution**
	Found in both rocky and sandy areas, in habitats ranging from grassland to moist mountain meadows.	Population size and trends unknown.	mostly in the central west part of the United States

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Status in UT unknown	Determine and Map Distribution	Determine distribution in Utah	M

Northern Leopard Frog *Rana pipiens* Tier III Amphibian	**Biology and Life History**	**Population**	**Distribution**
	Found in grasslands,brush lands, woodlands and forest.	Population size and trends unknown.	throughout Utah

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Status in UT unknown	Determine and Map Distribution	Determine distribution in Utah	M
Water Development	Water development for agricultural or municipal uses may reduce available habitat	Control and Monitor Disturbance	Monitor populations at greatest risk from water or other developments	M
Disease	Chitrydiomycosis (chytrid fungus) may negatively affect populations	Monitor Population Responses to Disease	Monitor populations and submit to testing if signs of chytrid found	M

Pacific Treefrog *Pseudacris regilla* Tier III Amphibian	**Biology and Life History**	**Population**	**Distribution**
	Inhabits dry and swampy grassy areas.	Population size and trends unknown.	eastern portion of Utah

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	May have limited distribution in UT	Determine and Map Distribution	Surveys for species in western UT are needed	M
Disease	Chytridiomycosis (chytrid fungus) may negatively affect populations	Monitor Extent of Disease	Monitor populations and submit any potential positive samples for analysis	M

Plains Spadefoot *Spea bombifrons* Tier III Amphibian	**Biology and Life History**	**Population**	**Distribution**
	Species occurs primarliy in Pinyon-Juniper habitat, but will also reside in grasslands.	Limited information. Population trend unknown. Single specimen collected.	Poorly documented. Occurs in two localities in Utah (southeast San Juan County and on the border of San Juan Couty, UT and Montezuma County, CO

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	May have limited distribution in UT	Determine and Map Distribution	Surveys for species in southeast UT are needed	M

Plateau Striped Whiptail *Cnemidophorus velox* Tier III Reptile	**Biology and Life History**	**Population**	**Distribution**
	Typically inhabits foothills, canyons and washes in shrub dominated or Pinyon-Juniper habitat. Often found in rocky, unvegetated patches between shrubs and bunchgrasses.	Uncommon in most areas; more common in southeastern Utah. Population trend not studied due to restricted activitiy above ground.	Occurs primarily in the Colorado Plateau extending into the southern Bonneville Basin. Species commonly occurs throughout Natural Bridges National Monument and in one location in Zion National Park.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Status in UT unknown	Determine and Map Distribution	Determine extent of distribution in Utah	H
Habitat Loss	Habitat degradation due to agriculture and livestock grazing	Conserve Suitable Habitat	Seek opportunities to protect suitable habitat	M
Invasive Plant Species	Habitat degradation due to invasion of cheatgrass	Population Monitoring and Research	Determine extent of habitat change effects on population	L
Lack of Information	Population status and trend unknown	Population Monitoring and Research	Determine population status and trends	H

Ring-necked Snake *Diadophis punctatus* Tier III Reptile	**Biology and Life History**	**Population**	**Distribution**
	Ranges from moist habitat to xeric conditions in juniper dominated habitat with well-developed grasses and shrub understory. Occurs primarily in habitats at elevations of between 1,750 m and 2,000 m.	Uncommon in Utah, but this is probably due to secretive behavior rather than rarity.	Occurs in the southern Bonneville Basin and Virgin River drainage.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Status in UT unknown	Determine and Map Distribution	Determine extent of distribution in Utah	M

Rubber Boa *Charina bottae* Tier III Reptile	**Biology and Life History**	**Population**	**Distribution**
	Typically occurs in rocky areas in a variety of mountain shrub, mountain riparian and forested habitats. Many localities are in canyons and high plateaus.	Population size and trend not known due to species being fossorial and difficult to detect. Species thought to be uncommon in Utah.	Common in Wasatch and Unita Mountains. Disjunct population in Garfield County.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Status in UT unknown	Determine and Map Distribution	Determine extent of distribution	M
Human Disturbance	Road mortalities due to human use of habitat	Control and Monitor Disturbance	Determine extent of impact to population	L
Harvest	Subject to illegal collection	Education and Outreach	Continue to work with volunteer herpetology groups and review of legal protection	M
Lack of information	population status and trend unknown	Population Monitoring and Research	Determine population status and trends	H

Sidewinder *Crotalus cerastes* Tier II Reptile	**Biology and Life History**	**Population**	**Distribution**
	Found in open areas with sparse vegetation and loose sands.	Population size and trends unknown.	Mojave Desert of Washington County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human Disturbance	Recreation and persecution	Protect Significant Areas	Prioritize and protect disturbed areas	H
Habitat Loss	Habitat degradation and fragmentation	Conserve Suitable Habitat	Protect suitable undisturbed areas	M
Development	Widespread municipal development in Washington County	Control and Monitor Disturbance	Monitor species response to disturbances	H
Lack of Information	Population status and trends unknown	Population Monitoring and Research	Determine population status and trends	H

Smith's Black-headed Snake *Tantilla hobartsmithi* Tier III Reptile	**Biology and Life History**	**Population**	**Distribution**
	Typically occus in rocky canyons with a variety of vegetation including desert scrub, juniper and lowland riparian.	Although seldom seen, species should not be considered rare. 18 specimens found in Kane County. Population trend unknown.	Occurs in the Colorado Plaueau of southern and eastern Utah, also in Grand County. Most often reported west of the Colorado River.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Status in UT unknown	Determine and Map Distribution	Determine extent of distribution in Utah	H
Lack of Information	Population status and trend unknown	Population Monitoring and Research	Determine population status and trends	H

Smooth Greensnake *Opheodrys vernalis* Tier II Reptile	**Biology and Life History**	**Population**	**Distribution**
	Occurs in meadows and stream margins.	Population size and trends unknown.	Wasatch, Uinta, Abajo and La Sal mountain rages and in the East Tavaputs Plateau

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human Disturbance	Agricultural practices decrease available habitat	Protect Significant Areas	Prioritize and protect undisturbed areas	M
Habitat Loss	Habitat degradation and fragmentation	Conserve Suitable Habitat	Prioritize and protect undisturbed areas	M
Lack of Information	Population status and trend unknown	Population Monitoring and Research	Determine population status and trend	M

Sonora Mountain Kingsnake *Lampropeltis pyromelana* Tier III Reptile	**Biology and Life History**	**Population**	**Distribution**
	Occurs in rocky habitats, often in canyons having open forests with a well developed, brushy understory. Also occurs near streams and springs.	Northern populations (Salt Lake and Utah Counties) have apparently been lost. Information is limited because species is secretive and rarely encountered.	Patchy distribution from Pine Valley Mountains, north through the central plaueau mountains to Salt Lake and Utah Counties. Disjunct populations in Wah Wah Mountains.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Status in UT unknown	Determine and Map Distribution	Determine extent of distribution in Utah	H
Harvest	Subject to illegal collection	Education and Outreach	Continue to work with volunteer surveyors and on legal protection	H
Lack of Information	Population status and trend unknown	Population Monitoring and Research	Determine population status and trend	H

Speckled Rattlesnake *Crotalus mitchellii* Tier II Reptile	**Biology and Life History**	**Population**	**Distribution**
	Pinyon-juniper with salt desert scrub, creosote-bursage and blackbrush.	Population size and trends unknown.	Beaver Dam Slope of Washinton County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human Disturbance	Recreation, development, and persecution	Protect Significant Areas	Prioritize and protect undisturbed areas	M
Habitat Loss	Habitat destruction and fragmentation	Conserve Suitable Habitat	Prioritize and protect undisturbed areas	M

Spotted Leaf-nosed Snake *Phyllorhynchus decurtatus* Tier III Reptile	**Biology and Life History**	**Population**	**Distribution**
	Prefers sandy or gravelly desert, closely associated with creosote bush.	Population trend not known due to difficulty in detecting this small, fossorial species.	One specimen collected in southwestern Washington County in 1995.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	May have limited distribution in UT	Determine and Map Distribution	Surveys for species in southwest UT are needed	M

Western Banded Gecko *Coleonyx variegatus* Tier II Reptile	**Biology and Life History**	**Population**	**Distribution**
	Occurs in creosote-dominated vegetation in rocky areas of riparian zones.	Population size and trends unknown.	Washington County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human Disturbance	Recreation and predation by domestic animals	Protect Significant Areas	Prioritize and protect undisturbed areas	H
Development	Municipal development reducing available habitat	Control and Monitor Disturbance	Monitor populations to identify areas in need of protection	
Harvest	Subject to illegal collection	Education and Outreach	Provide additional information to schools, parks	M

Western Lyresnake *Trimorphodon biscutatus* Tier III Reptile	**Biology and Life History**	**Population**	**Distribution**
	Typically occurs in rocky areas and dry washes in desert shrub habitat.	Limited information. Population trend unknown. Noted to be one of Utah's most obscure and rare snakes.	Known to occur in Washington County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Status in UT unknown	Determine and Map Distribution	Determine extent of distribution in Utah	M

Western Patch-nosed Snake *Salvadora hexalepis* Tier III Reptile	**Biology and Life History**	**Population**	**Distribution**
	Prefers low, arid, open habitats, including those dominated by creosote bush, sagebrush and desert scrub.	Population size and trend unknown. Species is locally abundant in some areas.	Occurs in southern Washington and Kane Counties. Thought to be fairly common in the Mojave Desert and transition areas.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	May have limited distribution in UT	Determine and Map Distribution	Surveys for species in southern UT are needed	M
Development	Habitat fragmentation due to construction in Washington County	Conserve Suitable Habitat	Protect undisturbed areas	M

Western Skink *Eumeces skiltonianus* Tier III Reptile	**Biology and Life History**	**Population**	**Distribution**
	Found primarily in grassland to low desert scrub.	Population size and trends unknown.	throughout most of the Great Basin to Northern Arizona

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Status in UT unknown	Determine and Map Distribution	Determine extent of distribution in Utah	H

Western Threadsnake *Leptotyphlops humilis* Tier II Reptile	**Biology and Life History**	**Population**	**Distribution**
	Found in Pinyon-Juniper habitat.	Population size and trends unknown.	Washington County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human Disturbance	Recreation	Protect Significant Areas	Prioritize and protect undisturbed areas	M
Development	Municipal development reducing available habitat	Conserve Suitable Habitat	Prioritize and protect undisturbed areas	M

Western Toad *Bufo boreas* Tier II Amphibian	**Biology and Life History**	**Population**	**Distribution**
	Found in high elevation wetlands.	Population size and trend unknown.	In Utah species is found in Box Elder, Cache, Rich, Wasatch, Summit, Sevier, Piute, Wayne, Garfield and Kane Counties.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human Disturbance	OHV recreation and livestock overgrazing	Population Monitoring and Research	Monitor populations' responses to threats	H
Disease	Chytrid reducing survivorship	Test and Monitor Disease	Monitor extent of chytrid and measure survival; submit any additional potential samples for testing	H
Invasive Animal Species	Bullfrogs	Population Monitoring and Research	Monitor productivity and survival where bullfrogs are present; initiate mechanical control if needed	M

Zebra-tailed Lizard *Callisaurus draconoides* Tier II Reptile	**Biology and Life History**	**Population**	**Distribution**
	Occurs in fine windblown sand to firm soil habitats with little vegetation.	Population size and trends unknown.	southern and westerm parts of Washington County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human Disturbance	Recreation	Protect Significant Areas	Prioritize and protect undisturbed areas	H
Development	Vegetation changes due to construction	Control and Monitor Disturbance	Monitor population response to habitat changes	M
Lack of information	Population status and trends unknown	Population monitoring and research	Determine population status and trends	M

Birds

Abert's Towhee *Pipilo aberti* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Permanent resident in lowland riparian of southwestern Utah; pair occupy territories year around.	The Abert's Towhee has declined by 2.5 percent annually from 1980 through 2003 both in the Western Region and Surveywide (BBS 2003). Uncommon in Utah.	Southwestern North America. In Utah, species occurs along the Virgin River drainage and Santa Clara River drainage

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Development	Overgrazing in riparian areas	Implement Existing Conservation Plan	Manage grazing practices to promote growth of native riparian vegetation and reduce grazing impacts during nesting season	H
Parasitism	Relatively high rate of nest parasitism by Brown-headed cowbirds	Implement Existing Conservation Plan	Monitor nest parasitism, potentially control Brown-headed cowbirds through trapping and distribution of cattle	
Habitat Loss	Loss of riparian habitats from urban encroachement, tamarisk invasion and several other factors	Implement Existing Conservation Plan	Maintain and increase multi-layered riparian areas and replace tamarisk with native riparian vegetation; Conserve all suitable occupied habitat.	

American Avocet *Recurvirostra americana* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Nesting occurs in salt ponds or shallow alkaline wetlands. The Intermountain West region is the most important breeding area for American Avocets in North America (UTACS 2001).	The five-year mean peak count of avocets on Great Salt Lake is 122,000 and the largest amount in five years was 205,000. This represents nearly half of the estimated global population. This species is common in Utah.	Occurs near rivers and lakes in Box Elder, Uintah, Rich, Juab, Millard, Tooele and Grand Counties.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	Intermountain West is the most important breeding area in N. America	Implement Existing Conservation Plan	Monitor and assess population status in Great Basin and along migration routes.	M
Lack of Information	Need further information on population status, productivity, and suspected declines	Population Monitoring and Research	Monitor survivorship, determine techniques to increase productivity, determine population status	M
Environmental Contaminant	Contamination of wetlands from agricultural practices, specifically selenium pollution associated with irrigation practices (Robinson et al. 1997).	Implement Existing Conservation Plan	Regulate discharges and require mitigation for contaminated habitats; work with USFWS to monitor contaminants on Great Salt Lake	L
Human Disturbance	Off-road vehicle use	Education and Outreach	Sign nest colonies and access points	L
Development	Destruction of shoreline habitat due to diking, road construction, and salt plant operations	Implement Existing Conservation Plan	Develop local and regional conservation plans with stakeholders	M
Water Development	Deterioration and loss of wetlands due to agricultural diversions, urban water storage, and flood control	Control and Monitor Disturbance	Monitor Great Salt Lake levels and correlate with population size and productivity	M

American White Pelican *Pelecanus erythrorhynchos* Tier II	**Biology and Life History**	**Population**	**Distribution**
	Pelicans nest colonially on islands. Great Salt Lake nesting colony great distance from food sources.	Locally common in the state and the Great Salt Lake colony is only major colony with 30 year positive trend. Lake fluctuations affect colony size.	In Utah, nests predominantly on Gunnison Island in the Great Salt Lake. That colony one of three largest in North America

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human Disturbance	Human disturbance during breeding may result in abandonment of entire colony	Implement Existing Conservation Plan	Human disturbance to breeding colony should be carefully managed to avoid abandonment and mortality	H
High % of Global Population	Colony is one of three largest breeding colonies in North American	Implement Existing Conservation Plan	Continue to monitor population, productivity and survival on Great Salt Lake population	H
Limited Breeding Distribution	Limited breeding distribution increases threat of extinction/extirpation	Determine and Map Distribution	Conduct distribution surveys across West including nesting, foraging, and migrating habitats; determine habitat requirements and assess suitability of Great Salt Lake islands as pelican habitat.	M
Disease	West Nile Virus could impact nesting colony	Test and Monitor Disease	Monitor colony for dead birds and test dead pelicans from colony and across northern Utah	M

Band-tailed Pigeon *Columba fasciata* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Inhabits montane conifer or oak-pine forests. Peak nesting occurs from early to midsummer. A single egg is usually laid in the nest and is incubated by both parents.	Breeding population has declined since the 1960's (Audobon 2002). Breeding Bird Survey trend analysis shows a significant decline across its U.W. and Canadian range of 2.5% per year from 1966-2001. This species is uncommon in Utah.	Found along coastal woodlands of the Pacific coast as well as the mountains of Colorado, New Mexico, Arizona and Utah. In Utah, this species nests at mid-elevations in mountain habitat and is more common in the southern part of the state.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Lack of information on absolute or relative abundance and demographics of Band-tailed Pigeons	Population Monitoring and Research	Test monitoring techniques; monitor range-wide population size; assess annual production; estimate survival rates; determine age-specific recruitment; determine impacts of non-hunting mortality.	M
Habitat Loss	Degradation of suitable habitat	Habitat Monitoring and Research	Determine impacts of Ponderosa Pine habitat loss and alteration on species; Identify the distribution, types, and use of habitats.	M
Harvest	Unregulated hunting in portions of range	Education and Outreach	Develop annual hunting regulations across range; assess various harvest options; evaluate effects of early-season harvest.	M
Lack of Information	Information is lacking on the present distribution.	Implement Existing Conservation Plans (Pacific and Central Flyway, Four Corners Population and UDWR Pigeon Management Plans)	Determine present population range, develop current distribution maps.	M

Bell's Vireo *Vireo bellii* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Neotropical migrant that requires dense shrubby riparian areas in which to nest.	Species shows a significant (2.9% annual) decline across it's range (Sauer et al. 2004). Bell's Vireo is rare in Utah.	Four subspecies occur in North America; the Arizona Bell's Vireo occurs in Washington and Kane Counties of Utah in the Beaver Dam Wash and Virgin River drainages.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Habitat Loss	Loss, fragmentation and degradation of riparian habitats from various factors; particularly removal of shrub layer.	Implement Existing Conservation Plan	Protect and restore multi-layered riparian habitats in southwestern Utah; replace tamarisk with native vegetation; manage grazing to promote growth of riparian shrubs and enhance vireo nesting	H
Nest Parasitism	Cowbird parasitism is a serious problem throughout the range	Implement Existing Conservation Plan	Manage cowbirds through removal and distribution of livestock (e.g., feedlots, stables, dairies, salt licks); study impacts of cowbird parasitism on vireo productivity	M
Lack of Information	Arizona Bell's Vireo subspecies poorly studied	Population Monitoring and Research	Determine population demographics and habitat needs for subspecies	M

Black Rosy-finch *Leucosticte atrata* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Altitudinal migrant which nests in the alpine tundra and winters in low elevation valleys.	Very little is know of population trends or demographics. Species is uncommon in Utah.	Utah is a significant portion of the Black Rosy-finch range. Species nests in Uinta and Wasatch Mountains south to the Tushar Range; species also occurs in Deep Creek and La Sal Mountains.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	Species occurs isolated populations at highest elevations of Utah mountain ranges	Determine and Map Distribution	Inventory Rosy-finch locations across state in summer and winter	M
Lack of Information	Very limited information on populations, demographics, or breeding habitat needs.	Population Monitoring and Research	Determine densities of breeding populations and monitor periodically	M
Lack of Information	Little information available regarding winter roost areas	Implement Existing Conservation Plan	Determine roost site characteristics, particularly use of abandoned mines and artificial structures.	M

Black Swift *Cypseloides niger* Tier II	**Biology and Life History**	**Population**	**Distribution**
	Only nests near waterfalls. Lays only one egg. Extended incubation and nestling periods; nearly 80 days from laying to fledging.	The rangewide population appears to be declining (7.3%/year, P= 0.11). Very rare in Utah, since 1960 only 2 known general nesting areas in state.	Only two confirmed breeding locations in the state at Bridal Veil Falls and Aspen Grove.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Need further information on distribution & habitat requirements	Implement Existing Conservation Plan	Survey waterfalls throughout the state to determine occupation	H
Limited Distribution	Highly specialized nesting habitat results in very limited distribution in Utah and increased risk of extirpation	Implement Existing Conservation Plan	Protect known nesting sites (including water flow/quality)	H
Human Disturbance	Recreation such as hiking to and around falls may impact nesting	Implement Existing Conservation Plan	Determine effect of recreation, reduce/control habitat alteration (including water flow/quality)	M
Water Development	Water reallocation potentially threatens this species	Implement Existing Conservation Plan	Maintain flows and water quality at currently and historically occupied nest sites	H

Black-billed Cuckoo *Coccyzus erythropthalmus* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Black-billed Cuckoo can be found in moist thickets, in low overgrown pastures and orchards; also occurs in thicker undergrowth and sparse woodlands.	No trend estimates are available for this species in the state of Utah. Rare in Utah, only six records in the state.	The Black-billed Cuckoo is a rare summer resident in north-central Utah. There is some evidence to suggest that some of these birds may be breeding in Utah. Further research would be required to substantiate reports. Six existing records are from the Salt Lake area.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Habitat Loss	Destruction or degradation of riparian habitat	Restore Degraded Habitats	Protect existing riparian habitats along Wasatch Front; restore riparian where possible.	H
Lack of Information	Little data on occurrence and status in Utah	Population Monitoring and Research	Initiate inventory efforts at historical sites and sites with suitable habitat.	L

Black-necked Stilt *Himantopus mexicanus* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Nests colonially on mudflats and shorelines. The Intermountain West region is the most important breeding area for Black-necked Stilts in North American (UTACS 2001).	Uncommon in Utah current trend is unknown. Five-year average peak counts of this species on Great Salt Lake were 38,000 with a max count of 57,000.	Breeds in western and west-central states, Gulf and Atlantic coasts, Baja California, western Mexico, southwest-central Canada, and portions of the Bahamas and West Indies. Summer resident in northern Utah.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	Intermountain West Region is the most important breeding area for Black-necked Stilts	Implement Existing Conservation Plan	Monitor and assess population status in Great Basin and along migration routes.	M
Lack of Information	Need further information on population status, productivity, and suspected declines	Population Monitoring and Research	Monitor survivorship, determine techniques to increase productivity, determine population status	M
Environmental Contaminant	Contamination of wetlands from agricultural practices, specifically selenium pollution associated with irrigation practices (Robinson et al. 1997).	Implement Existing Conservation Plan	Regulate discharges and require mitigation for contaminated habitats; work with USFWS to monitor contaminants on Great Salt Lake	L
Human Disturbance	Off-road vehicle use	Education and Outreach	Sign nest colonies and access points	L
Development	Destruction of shoreline habitat due to diking, road construction, and salt plant operations	Implement Existing Conservation Plan	Develop local and regional conservation plans with stakeholders	M
Water Development	Deterioration and loss of wetlands due to agricultural diversions, urban water storage, and flood control	Control and Monitor Disturbance	Monitor Great Salt Lake levels and correlate with population size and productivity	M

Black-throated Gray Warbler *Dendroica nigrescens* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Black-throated Gray Warbler is a single brood species. Preferred breeding habitat is pinyon-juniper woodlands.	Uncommon in Utah. BBS data indicated a downward but statistically non-significant trend in the state.	Breeding range almost entirely within western United States. Species occurs throughout Utah.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Information lacking on population, life history, and habitat requirements	Population Monitoring and Research	Determine current population status, trend, and breeding status in Utah	L
Lack of Information	Information lacking on response to habitat change	Habitat Monitoring and Research	Determine response to habitat alteration including timber harvest, fire management, livestock grazing	L
Habitat Loss	Destruction of preferred habitats due to chaining, timber harvest, fire management, and livestock grazing.	Implement Existing Conservation Plan	Survey areas prior to treatment; discourage large clearings of suitable habitat, encourage small openings and retain large trees	M
Habitat Loss	Destruction of preferred habitats due to chaining, timber harvest, fire management, and livestock grazing.	Education and Outreach	Prepare Pinyon-JuniperBird Management Manual in cooperation with adjacent states and federal agencies.	H

Bobolink *Dolichonyx oryzivorus* Tier II	**Biology and Life History**	**Population**	**Distribution**
	Wet meadow obligate. One of the longest migrations of North American passerines. Uncommon cowbird host.	Significant (1.6%/year) population decline across range. Historically common in northern Utah, now rare	Isolated breeding populations in northern Utah and West

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Development	Nest and young survival reduced from mowing during nesting period	Implement Existing Conservation Plan	Manage mowing in cooperation with landowners to avoid impacting nesting and fledgling birds	H
Limited Distribution	Distribution of species has been drastically reduced from historical distribution	Implement Existing Conservation Plan	Educate landowners on effects of mowing	H
Habitat loss	Wet meadow habitats have decreased and been fragmented by agricultural and urban encroachment, road development, water development (reservoirs and instream flow depletions) and stream channelization	Implement Existing Conservation Plan	Determine effect of mowing and grazing on breeding birds	H
Habitat loss	Habitat decline and fragmentation	Implement Existing Conservation Plan	Maintain wet meadows with breeding Bobolink populations	H
Habitat loss	Habitat decline and fragmentation	Implement Existing Conservation Plan	Create habitats to connect existing populations	H

Boreal Owl *Aegolius funereus* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Occurs in northern coniferous and mixed decidous boreal and sub-alpine forests of North America.	Global population appears reasonably secure, whereas in the southernmost portions of its range localized populations may be more susceptible to extirpation. Rare in Utah.	Widely distributed throughout Canada and Eurasia. More localized populations extend farther south into North America including Colorado, Utah, Wyoming,, Montana, Idaho and Washington. In Utah, species occurs in the central Wasatch region.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Information needed on distribution and breeding status in Utah	Population Monitoring and Research	Monitoring needed to determine current distrubution and breeding status in Utah	L
Environmental Contaminant	Sensitive to use of pesticides in forest environments	Control and Monitor Contaminants	Avoid use of detrimental pesticides in know breeding locations	L
Habitat Loss	Loss of suitable nesting cavities from removal of old snags	Habitat Monitoring and Research	Determine density of snags required for successful breeding and population maintenance	L

Brewer's Sparrow *Spizella breweri* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Brewer's Sparrows are considered shrubsteppe obligates (Braun et al. 1976).	Brewer's Sparrows are declining rangewide at 3.7%/year (Sauer et al. 2001). Common and stable in Utah and population and may act as a source for other populations in the West.	Primarily a Great Basin species but occurs in shrubsteppe in all western states (Parrish et al. 2002). Breeds throughout Utah in lowland areas.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
High % of Global Population	Utah is an important area to Brewer's Sparrows	Implement Existing Conservation Plan	Monitor population status, trend, and survivorship in Utah	H
Nest Parasitism	Parasitism by Brown-headed Cowbirds varies greatly but in some areas exceeds 50% of nests parasitized	inventory and Monitor Invasive Species	Determine impact of parasitism on Utah population; control cowbirds when necessary	M
Lack of Information	Information lacking on habitat requirements and response to alteration	Implement Existing Conservation Plan	Determine habitat requirements and ecological interactions.	H
Habitat loss	Degradation and destruction of shrubsteppe habitats due to fire, introduction of non-native grasses, and urban encroachment.	Implement Existing Conservation Plan	Monitor response to habitat alteration as part of shrubsteppe monitoring program	H

Broad-tailed Hummingbird *Selasphorus platycercus* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Dependent on nectar-bearing flowering plants.Females will abandon nesting attempt if resources decline substantially.	BBS data indicate net stable to increasing population trend; Utah point count data (1992-1998) indicates significant declining trend throughout Utah. Common in Utah.	Eastern Guatemala north through Mexico, western United States north to southwestern Montana. Occurs statewide in Utah.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Additional information needed on population declines and response to habitat alteration	Implement Existing Conservation Plan	Determine effectiveness of population monitoring techniques and response to habitat alteration	M
Habitat Loss	Alteration/ degradation of mountain riparian and lowland riparian habitats and removal of nectar-bearing flowering plants	Habitat Monitoring and Research	Determine factors impacting suitable habitats including nectar-bearing flowers	M

Burrowing Owl *Athene cunicularia* Tier II	**Biology and Life History**	**Population**	**Distribution**
	Burrow nester usually relying on other animals to make burrows	Rangewide population decline (0.6%/year) but western population increasing. Rare in Utah	Historically more extensive in Utah. Occurs statewide in shrubsteppe habitat.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Development	Urbanization destroying nesting habitat	Population Monitoring and Research	Determine response to habitat alteration, human disturbance, and prairie dog control	H
Lack of Information	Further information is needed on population, productivity and relationship to prairie dog colonies	Population Monitoring and Research	Monitor population, productivity, and survival	H
Lack of Information	Further information is needed on genetic distribution	Population Monitoring and Research	Determine genetic relationship among Utah populations and to other population across the range	M

Caspian Tern *Sterna caspia* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Least gregarious of the terns. May nest singly or in colonies. Nests are located on the ground often on islands or dikes. Caspian Terns feed almost exclusively on small fish.	In the early 1900's, Caspian Tern populations were drastically reduced.This species is on the rise, but population changes are highly localized. Five year average peak count on Great Salt Lake was 250, maximum 500. Rare in Utah but breeding population in appears to be increasing.	Breeds locally in eastern Oregon, northwestern Wyoming, Idaho (recent range expansion), and North Dakota, south to southern California, western Nevada and northern Mexico. In Utah, breeds in northern part of stateAlso breeds breeds in coastal Washington and California.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Information needed on Population and Productivity	Population Monitoring and Research	Determine current population status and productivity in Utah	M
Lack of Information	Information needed on habitat and prey requirements	Habitat Monitoring	Determine prey and habitat requirements and response to habitat alteration	M
Habitat Loss	Loss of interior wetlands and suitable breeding areas	Protect Significant Areas	Protect breeding colonies through water management	H
Human Disturbance	Disturbance at nest sites and egg collection	Education and Outreach	Educate public on sesitivity of colonial nesting species	M
Environmental Contaminant	Bioaccumulation of chemicals	Control and Monitor Contaminants	Coordinate with USFWS on contaminant evaluation	L
Human Disturbance	Removal of nesting colonies and killing of birds due to perceived conflict with fisheries	Education and Outreach	Educate public and private fisheries managers on effective bird deterant techniques	M

Crissal Thrasher *Toxostoma crissale* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Nests in dense mesquite and streamside shrubs in the Virgin River and its tributaries.	Species uncommon and declining in Utah.	Permanent resident of Southwestern Utah.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Information needed on Population and Productivity;	Population Monitoring and Research	Determine current population status and productivity in Utah	M
Human Disturbance	Human disturbance from urban encroachment and recreation	Control and Monitor Disturbance	Determine response to disturbance from recreation and response to habitat alteration	M
Habitat Loss	Riparian habitat adversely affected by agriculture, urban encroahchment and other riparian impactors	Conserve Suitable Habitat	Protect and restore riparian habitats in southwestern Utah	H

Ferruginous Hawk *Buteo regalis* Tier II	**Biology and Life History**	**Population**	**Distribution**
	Nest on ecotone between pinyon-juniper and shrubsteppe	Rare in Utah, productivity may not be sufficient to maintain state's population	Summer resident in lowland desert terrain throughout Utah.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human Disturbance	Species is prone to abandon nest sites with even low level of human disturbance	Control and Monitor Disturbance	Manage and/or mitigate disturbance from recreation near nest sites	H
Lack of Information	Need further information on population status and productivity	Population Monitoring and Research	Conduct surveys on population, productivity and distribution	H
Habitat Loss	Nest site reduction from removal of natural nesting areas	Implement Existing Conservation Plan	Discourage clearing of juniper woodlands; Determine importance of alternate nests; Augment nest availability with artificial nests where appropriate. Avoid impact to nesting sites during habitat management activities.	H
Energy Development	Loss of habitat and disturbance on breeding grounds from oil and gas extration activities	Implement Existing Conservation Plan	Establish buffer zones around nests; Determine effects of oil and gas activities on nesting and foraging	H
Habitat Loss	Destruction of preferred habitats due to chaining, timber harvest, fire management, and livestock grazing.	Education and Outreach	Prepare Pinyon-JuniperBird Management Manual in cooperation with adjacent states and federal agencies.	H

Gambel's Quail *Callipepla gambelii* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Permanent resident throughout its range. Primary food sources include seeds of forbs, grasses, shrubs and cacti. There exists a strong correlation between breeding success and winter-spring precipitation in desert areas.	Uncommon in Utah but population trends unknown.	Permanent resident of Southwestern United States and Sonora, Mexico. In Utah, Gambel's Quail are found in Washington Co., Kane Co., and along the Colorado River in Grand Co.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Development	Impacts to quail habitats from urbanization and improper grazing	Implement Existing Conservation Plan (UTACS)	Monitor population responses to grazing; manage grazing to promote native vegetation; Discourage clearing of riparian area; Identify and enhance fragmented and degraded habitats	H
Invasive Plant Species	Exotic weed infestation of habitats and related alteration of natural fire regime	Implement Existing Conservation Plan (UDWR Strategic Plan forGambel's Quail)	Identify and protect existing habitat; Monitor population response to fire.	M
Development	Clean fence rows and field edges remove suitable habitat	Implement Existing Conservation Plan (UTACS)	Establish fence row and roadside habitat program	M

Grasshopper Sparrow *Ammodramus savannarum* Tier II	**Biology and Life History**	**Population**	**Distribution**
	Nests in native or restored grasslands	Rare in Utah, species experiencing rangewide and western (7.9%/year) declines	Limited to northern portion of Utah in grassland areas.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Unknown population status and distribution	Population Monitoring and Research	Determine extent of distribution and population status in Utah	H
Habitat Loss	Historical grassland conversion to croplands	Population Monitoring and Research	Determine response to Conservation Reserve Program	H
Habitat Loss	Species appears to nest only in ungrazed grasslands	Population Monitoring and Research	Determine effect of grazing on breeding birds	H

Gray Vireo *Vireo vicinior* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Short-distance migrant. (Breeding populations do not entirely depart from U.S.)	Highest densities of Gray Vireo's are within the Colorado Plateau, but considered rare in Utah. Long-term declines have been noted in California and Arizona (Desante and George 1994, Small 1997).	Breeds on arid slopes dominated by mature Pinyon-Juniper or juniper woodlands of southwestern Utah, as far north as Sevier County (Woodbury and Cottam 1962).

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
High % of Global Population	Highest densities of Gray Vireos are within the Colorado Plateau with Utah containing the bulk of the distribution.	Implement Existing Conservation Plan	Determine population status, life history and population dynamics	M
Lack of Information	Information needed on Utah distribution, ecology, and life history requirements	Implement Existing Conservation Plan	Determine current Utah distribution, ecology, and life history requirements	M
Nest Parasitism	Nest parasitism by Brown-headed Cowbirds	Control and Monitor Invasive Species	Monitor cowbird parasitism and control if warranted	L
Habitat Loss	Degradation of pinyon-juniper habitats due to overgrazing, fuel harvest, and introduction of exotic annuals.	Implement Existing Conservation Plan	Survey for vireos prior to management activities; correlate treament effects with occurrence and other variables.	M
Habitat Loss	Degradation of pinyon-juniper habitats due to overgrazing, fuel harvest, and introduction of exotic annuals.	Implement Existing Conservation Plan	Prepare Pinyon-JuniperBird Management Manual in cooperation with adjacent states and federal agencies.	H
Human Disturbance	Habitat degradation due to recreational vehicle use	Education and Outreach	Increase cooperation with federal agencies to enforce existing regulations	M

Greater Sage-grouse *Centrocercus urophasianus* Tier II	**Biology and Life History**	**Population**	**Distribution**
	This species is a ground nester in sagebrush habitat and is susceptible to native and non-native predation. Recovery from population declines is hindered by small clutch size.	Dramatic population decline throughout range in the last 70 years, and number of males at lek sites continues to decrease. Utah populations have decreased by approximately 90%.	Current range includes western and northwestern states and parts of canada. In Utah, they are found primarily in Box Elder, Uintah, Rich and Wayne Counties.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Disease	West Nile Virus	Implement Existing Conservation Plan	Monitor and control disease	M
Habitat Loss	Loss of shrubsteppe from improper grazing, invasive plants, disrupted fire regimes and other factors; lack of herbaceous under story in sagebrush habitats	Implement Existing Conservation Plan	Establish local working groups who will complete local conservation plans	H
Habitat Loss	Pinyon-Juniper succession in sagebrush habitats	Restore Degraded Habitats	Identify and enhance fragmented and degraded habitats	H
Development	Expansion by oil and gas industries	Conserve Suitable Habitat	Identify and protect existing habitat	H
Limited Distribution	Species is restricted to portion of historic range	Population Monitoring and Research	Monitor population trends	H
Invasive Animal Species	Predation by Red fox and Common Raven	Control and Monitor Invasive Species	Monitor and control predation	M

Lewis's Woodpecker *Melanerpes lewis* Tier II	**Biology and Life History**	**Population**	**Distribution**
	Flycatching woodpecker found in open Ponderosa, Riparian and possibly Aspen forests. Wanders in nomadic flocks in fall and winter.	Lewis's woodpecker has been functionally extirpated from Wasatch front; species is much less common today than historically (Behle et al. 1985). Population trend estimates are inconclusive. Species is an uncommon permanent resident in Utah.	Breeds from southern British Columbia to southwestern South Dakota and northwestern Nebraska to south central California, central Utah southern New Mexico and eastern Colorado (DeGraaf 1991). In Utah, distribution is concentrated in the northeastern and southeastern regions of the state with a small number occurring in the northwestern corner. Utah represents a significant portion of the species overall range (Parrish et al. 2002).

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Habitat Loss	Fire suppression has decrease open forests needed for foraging	Implement Existing Conservation Plan (UTACS)	Cooperate with land management agencies to create open Ponderosa forests with large trees	H
Development	Overgrazing in riparian areas has removed ground cover required by insect prey	Implement Existing Conservation Plan (UTACS)	Manage grazing practices to maintain ground cover, especially in riparian areas.	H
Invasive Animal Species	European Starlings are major competitors for nesting cavities	Population Monitoring and Research	Determine population effects of starling competition and investigate methods of reducing competition	M
Lack of Information	Limited information and methodologies regarding population trends and demographics	Population Monitoring and Research	Determine population and demographic trends; investigate monitoring methods	H
Lack of Information	Limited information on habitat needs	Habitat Monitoring and Research	Determine habitat characteristics in Ponderosa, Riparian and Aspen forests.	H

Long-billed Curlew *Numenius americanus* Tier II	**Biology and Life History**	**Population**	**Distribution**
	Breeds from south-central British Columbia and south central Canada to central California, throughout the midwest and northern Texas. Long-billed Curlews are ground nesters in rangeland and pastures and are vulnerable to predation and disturbance.	Decreasing rangewide at 1.2% per year with Utah populations substantially diminished over the last century.	Spotty distribution throughout the Great Basin. In Utah, it occurs most often in northern and central valleys.

General Threats	**Specific Threats**	**General Conservation Actions**	**Specific Conservation Actions**	**Priority**
Human Disturbance	Human disturbance as a result of housing development and introduction of domestic pets	Implement Existing Conservation Plan	Use the GSL Waterbird Survey to monitor population status and productivity	H
Limited Distribution	Intermountain West is considered most important breeding area	Implement Existing Conservation Plan	Establish statewide inventory and monitoring program	H
Invasive Animal Species	Predation by red foxes introduced into breeding habitat	Implement Existing Conservation Plan	Evaluate productivity and survival in habitats with red foxes	M
Habitat Loss	Fragmentation of nesting habitat	Habitat Monitoring and Research	Determine minimum patch size requirements	M

Lucy's Warbler *Vermivora luciae* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Primary and secondary breeding habitats for Lucy's Warbler are in lowland riparian. Nests in cavities and requires tree holes.	Common in Utah. BBS data shows no significant population trend, however sample size for this species is very small.	Breeds in northern Mexico and southwestern deserts of United States. Occurs in riparian zones in southern Utah, especially the Virgin River Valley.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Information needed on population status, habitat requirements, and response to habitat alteration	Implement Existing Conservation Plan	Determine current population status, habitat requirements, and response to habitat alteration	M
Nest Parasitism	Information needed on effect of Brown-headed; Cowbird Parasitism	Implement Existing Conservation Plan	Determine impact of cowbird parasitism on population; control cowbirds if necessary	M
Habitat Loss	Degredation of lowland riparian due to dewatering, livestock grazing, and urban encroachment	Implement Existing Conservation Plan	Evaluate effects of habitat loss on Lucy's Warbler populations and demography	M
Habitat Loss	Degredation of lowland riparian due to dewatering, livestock grazing, and urban encroachment	Implement Existing Conservation Plan	Protect and restore riparian habitats in southern Utah	H

Mountain Plover *Charadrius montanus* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Mountain Plover is typically associated with shortgrass prairie characterized by blue gramma and buffalo grass (Graul 1975).	Very rare in Utah with a single breeding population known to occur in the state (Day 1994). Mountain Plovers have drastically declined in Utah and may now be extirpated. (Parrish et al. 2002).	This species is known to nest in Utah only in a few places in the Uinta Basin

General Threats	**Specific Threats**	**General Conservation Actions**	**Specific Conservation Actions**	**Priority**
Human Disturbance	Disturbance to nesting areas from oil, gas and mining development	Implement Existing Conservation Plan	Create a buffer zone around the breeding areas on Myton Bench	H
Lack of Information	Further information is needed on species' status in Utah	Implement Existing Conservation Plan	Determine current status of species in state	H
Energy Development	Nest sites vulnerable to road contruction	Implement Existing Conservation Plan	Determine effects of oil and gas development and associated human disturbance	H

Osprey *Pandion haliaetus* Tier III	**Biology and Life History**	**Population**	**Distribution**
	The piscivorous raptor is sparsely distributed around mountain lakes and on the Green River.	Considered uncommon in Utah.	Its historical range has been substantially reduced in the state of Utah and nearly al known nesting occurs at Flaming Gorge Reservoir.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Information needed on population and productivity	Population Monitoring and Research	Determine current population status, productivity, and distribution in Utah;	M
Environmental Contaminant	Contaminants from pesticides	Population Monitoring and Research	Determine effect of contaminants on productivity and survivorship	M
Habitat Loss	Loss of nest sites in riparian habitats	Protect Significant Areas	Protect known nesting sites and enhance suitable areas with artificial nest structures where appropriate	H

Peregrine Falcon *Falco peregrinus* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Nesting dates vary across the state with changes in elevation and latitude, though courtship displays in the breeding area usually begin around late March and early April. In mid to late April, the female scrapes a shallow depression in which she lays 3 - 4 (sometimes 5) eggs.	Peregrine Falcon populations declined dramatically from the 1940s to the1960s attributed to the residues of DDT. Population has increased since DDT ban; spcies rare in Utah. Population increased in Southern portion of the state but not recovered. Population is artificially maintained in Northern part of state.	In Utah, Peregrine Falcon breeding sites occur in the UT Mountain (i.e., Wasatch and Uinta Mountains), Basin & Range, Mojave, and Colorado Plateau ecoregions. The largest concentrations are along the Colorado River (including Lake Powell) and its tributaries in the southeastern portion of the state. Current distribution is more limited than in the past (F. Howe unpubl. data).

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Information needed on population and productivity	Implement Existing Conservation Plan (USFWS Peregrine Falcon Monitoring Plan)	Determine current population status, productivity, and distribution	H
Human Disturbance	Disturbance from recreation and harvest	Control and Monitor Disturbance	Determine impact of human disturbance from harvest and recreation	H
Habitat Loss	Human encroachment along the Wasatch Front	Habitat Monitoring and Research	Determine why many historical nest sites remain vacant	M
Environmental Contaminant	Exposure to pesticides and organochlorines, especially on wintering grounds	Education and Outreach	Educate public on proper use and disposal of pesticides	L

Sage Sparrow *Amphispiza belli* Tier III	**Biology and Life History**	**Population**	**Distribution**
	The Sage Sparrow is a shrubsteppe-obligate species (Wiens and Rotenberry 1981).	BBS data shows no significant trend for this species. Uncommon in Utah.	Distributed in suitable habitat throughout Great Basin including western Washington, Wyoming, Arizona, Texas, eastern California, Utah and Nevada. Found locally throughout Utah.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Information needed on distribution, habitat requirements, and response to habitat alteration;	Implement Existing Conservation Plan	Population monitoring including distribution, habitat requirements, and response to habitat alteration.	H
Parasitism	Parasitism by Brown-headed Cowbirds	Control and Monitor Invasive Species	Determine effect of cowbird parasitism on population; control cowbirds when necessary	M
Habitat Loss	Degradation of preferred shrubsteppe habitat through mechanical and chemical treatments, overgrazing, altered fire regimes, urban encroachment and invasive plants	Implement Existing Conservation Plan	Evaluate species responses to restoration treatments as part of shrubsteppe monitoring program	H
Human Disturbance	Conversion of native to exotic grasses and livestock overgrazing	Education and Outreach		

Sage Thrasher *Oreoscoptes montanus* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Considered a shrubsteppe obligate. Requires healthy stands of mature sagebrush.	In North America, the sage thrasher appears to be stable in areas where it has suitable habitat. In areas with extensive loss of sagebrush, the species' numbers have greatly declined and some local populations have been eliminated. Species common in Utah.	Breeds from extreme southern British Columbia, southward through the western United Sates to northern Arizona and New Mexico. Common resident of lowland desert in Utah.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Information needed on population and productivity	Population Monitoring and Research	Determine current population status and productivity in Utah.	H
Lack of Information	Information needed on habitat requirements	Habitat Monitoring and Research	Determine habitat requirements (patch size, percent shrub cover) and response to habitat alteration	H
Habitat Loss	Destruction and modification of suitable habitat from various shrubsteppe impacting factors	Habitat Monitoring and Research	Evaluate species responses to restoration treatments as part of shrubsteppe monitoring program	H

Sharp-tailed Grouse *Tympanuchus phasianellus* Tier II	**Biology and Life History**	**Population**	**Distribution**
	Preferred habitat is Bunch-grass interspersed with deciduous shrubs. Grouse are ground nesters and raise only one brood per year, and are predation and population decline.	Rare in Utah. Occurs in only 4% of historic Utah distribution, and populations have severly declined rangewide in the last century.	In Utah, the spcies is Limited to a remnant population in eastern Box Elder, Cache, and Morgan counties.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Habitat Loss	Degradation through energy development; Exotic weed infestation of habitats; Improper grazing; agricultural development	Implement Existing Conservation Plan(s)	Identify and enhance fragmented and degraded habitats; implement DWR Strategic Management Plan for Sharp-tailed Grouse	H
Habitat Loss	Lack of herbaceous understory in sagebrush habitats; Pinyon-Juniper succession in sagebrush habitats	Implement Existing Conservation Plan(s)	Identify and protect existing habitat; implement DWR Strategic Management Plan for Sharp-tailed Grouse	H
Habitat Loss	Wildlfire return intervals in sagebrush habitats	Implement Existing Conservation Plan(s)	Implement existing Utah Partners in Flight Avian Conservation Strategy Plan for Sharp-tailed Grouse	H
Human Disturbance	Urbanization and human disturbance	Population Monitoring and Research	Monitor population trends; Secure funding for implementation of existing plans	H
Lack of Information				

Snowy Plover *Charadrius alexandrinus* Tier III	**Biology and Life History**	**Population**	**Distribution**
	The Snowy Plover is a shorebird species found along coastlines, salt flats, river sandbars, alkaline lakes, and agricultural ponds.	The North American population is relatively small and has declined over much of its range. Studies indicate that breeding populations have declined by 20% from the late seventies to the late eighties (Audubon 2002). Uncommon in state and Utah population estimated at nearly half of global population.	Distributed along the west coast from Washington to Baja and along the gulf coast from Florida to the Yucatan. Summer resident in northern Utah.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Information needed on population and productivity	Population Monitoring and Research	Determine current population status and productivity in Utah;	M
Human Disturbance	Disturbance from recreation	Control and Monitor Disturbance	Determine response to human disturbance from recreation	L

Three-toed Woodpecker *Picoides tridactylus* Tier II	**Biology and Life History**	**Population**	**Distribution**
	Permanent resident of coniferous forests above 8,000 ft, dependent on live and dead trees for foraging and nesting.	Considered common in Utah, but population trends are difficult to determine because occurances are sporadic and influenced by prey availablility. Population declines occur in areas of logging and fire supression.	This species occurs in northern Alaska, Newfoundland, and mountain areas of western and north-central states. In Utah, it is common in the Uinta Mountains and areas of the Cedar Breaks National Forest.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human Disturbance	Removal of large snags or salvage logging removes critical nesting and foraging areas	Implement Existing Conservation Plan	Educate the public and agencies on the importance of leaving large snags and the importance of the species in preventing insect epidemics	M
Lack of Information	Information needed on population status and productivity	Implement Existing Conservation Plan	Monitoring of population and productivity as well as response to habitat alteration (timber, beetle kill) and eruptive behavior	M
Habitat Loss	Fire suppression eliminates fire-killed trees and increases threat of catastrophic wildfire	Implement Existing Conservation Plan	Work with federal land management agencies to restore natural fire regimes and manage salvage harvest to enhance populations	H

Virginia's Warbler *Vermivora virginiae* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Virginia's Warbler using a variety of semi-open habitats during migration, especially riparian areas (Parrish et al 2002).	In Colorado and southern Rocky Mountains physiographic region a declining trend of 1% is indicated by BBS survey from 1966-1996 (Sauer et al. 2002.) Rare in Utah.	Breeding range of Virginia's Warbler almost entirely in southwestern United States (Parrish et al. 2002). Summer resident throughout Utah at mid-elevations.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Information needed on population status, life history and effects of fire and grazing	Implement Existing Conservation Plan	Determine current population status, general life history, habitat requirements and response to habitat alteration	M
Habitat Loss	Habitat degradation due fire, grazing, and timber harvest of Gamble Oak and removal and alteration of preferred shrub habitat	Implement Existing Conservation Plan	Survey target areas for species prior to habitat altering activities; manage fire, grazing and timber harvest to enhance habitat.	L

Williamson's Sapsucker *Sphyrapicus thyroideus* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Nests in high elevation (8000 ft to timberline) mountain forests statewide.	Further research required to determine extent of population reductions in Utah. Uncommon in Utah.	Summer resident in mountains throughout Utah.

General Threats	**Specific Threats**	**General Conservation Actions**	**Specific Conservation Actions**	**Priority**
Lack of Information	Information needed on population status and productivity	Population Monitoring and Research	Determine current population status, distribution, and productivity	M
Habitat Loss	Fire suppression increases threat of catastrophic wildfire	Control and Monitor Disturbance	Work with federal land management agencies to restore natural fire regimes and manage salvage harvest to enhance populations	H

Fishes

Bear Lake Sculpin *Cottus extensus* Tier II Fish	**Biology and Life History**	**Population**	**Distribution**
	Species is found throughout the lake in benthic areas. They spawn in mid-April to mid-May and attach their eggs to the underside of rocks where the males guard their egg masses until hatching. After hatching they utilize currents to spread out lake-wide from the rocky spawning areas. Sculpin are opportunistic bottom feeders, but rely on benthic invertebrates and ostracods as their main diet items.	Millions of individuals. The relative abundance of their population is monitored by bottom trawling biennially at standardized sites.	Endemic to Bear Lake.

General Threats	**Specific Threats**	**General Conservation Actions**	**Specific Conservation Actions**	Priority
Limited distribution	Found only in Bear Lake	Population Monitoring and Research	Monitor population status and trends	H
Limited Habitat	Drought may limit available spawning and rearing habitat	Habitat Monitoring and Research	Augment available spawning habitat if feasible	H
Human Disturbance	Species may be negatively affected by increasing human use of Bear Lake for residence and recreation, especially waste water discharges	Population Monitoring and Research	Monitor water quality, encourage sewer systems in new development and conversion from septic to sewer systems in existing development	M
Invasive Animal Species	Introduced lake trout	Population Monitoring and Research	Monitor productivity/survival where lake trout are present; alter lake trout management if required; all lake trout stocked beginning in 2001 and continuing indefinitely are/will be sterile, triploid fish	L

Bear Lake Whitefish *Prosopium abyssicola* Tier II Fish	**Biology and Life History**	**Population**	**Distribution**
	Species typically found in water depths of 40m and greater. They spawn in mid-February to mid-March over rocky areas in shallow water since there is little rock at the deeper depths. Feeds almost exclusively on ostracods, but may consume quatic invertebrates or terrestrial insects that sink to the bottom. They are closely associated with the benthic zone. Species can only be identified to species during spawning. At other times, they are distinguished from Bonneville whitefish by using scale counts above and below their lateral line.	Population size estimates are being developed. The population in Bear Lake is monitored through gill-net catch rates from standardized netting. The percent composition of this species is determined by making scale counts on whitefish subsampled at different depths.	Endemic to Bear Lake.

General Threats	**Specific Threats**	**General Conservation Actions**	**Specific Conservation Actions**	Priority
Limited distribution	Found only in Bear Lake	Population Monitoring and Research	Determine population status and trends	H
Human Disturbance	Species may be negatively affected byincreasing human use of Bear Lake for residence and recreation, especially waste water discharges	Habitat Monitoring and Research	Monitor water quality; encourage sewer systems in new development and conversion from septic to sewer systems in existing development	M
Invasive Animal Species	Introduced lake trout	Population Monitoring and Research	Monitor productivity and survival and alter lake trout management if required; all lake trout stocked beginning in 2001 and continuing indefinitely are/will be sterile, triploid fish	L

Bonneville Cisco *Prosopium gemmifer* Tier II Fish	**Biology and Life History**	**Population**	**Distribution**
	Species typically found in schools in the pelagic zone of Bear Lake near the thermocline when the lake is thermally stratified during the fall, winter and spring months. During nights at the, cisco break from their schools and are widely scattered throughout the lake. They spawn from mid-January to the first of February over rocky areas along the shoreline, weedbeds and deeper, rocky shoals. Species feeds almost exclusively on zooplankton. Individuals reach a maximum size of 250mm and are easily visually separated from Bonneville whitefish and Bear Lake whitefish by their pointed snout.	Apparently stable at approximately 2.5 - 3.0 million individuals. The Bear Lake population is monitored annually using hydroacoustic gear.	Endemic to Bear Lake.

General Threats	**Specific Threats**	**General Conservation Actions**	**Specific Conservation Actions**	Priority
Limited distribution	Found only in Bear Lake	Population Monitoring and Research	Monitor population status and trends	H
Human Disturbance	Species may be negatively affected by increasing human use of Gear Lake for residence and recreation, especially waste water discharges	Habitat Monitoring and Research	Monitor water quality; encourage sewer systems in new development and conversion from septic to sewer systems in existing development	M
Invasive Animal Species	Introduced lake trout	Population Monitoring and Research	Monitor productivity and survival and alter lake trout management if required; all lake trout stocked beginning in 2001 and continuing indefinitely are/will be sterile, triploid fish	L
Limited Habitat	Drought may limit available spawning and rearing habitat	Habitat Monitoring and Research	Augment available spawning habitat if feasible	H

Bonneville Whitefish *Prosopium spilonotus* Tier II Fish	**Biology and Life History**	**Population**	**Distribution**
	Species typically found in depths of up to approximately 40m. They spawn from mid-November to mid-December over rocky areas along the shoreline in water 3-10 feet deep or deeper over rocky shoals. Species is omnivorous, but prefer plankton, aquatic invertebrates and terrestrial insects that sink to the bottom. Individuals larger than 350mm are piscivorous and consume other whitefish, Bear Lake sculpin, and other juvenile fish. Species can grow up to 2kg. At total lengths of 250mm and less, a count of scales both above and within their lateral lines must be used to separate the species outside of their respective spawning seasons.	Bear lake population is monitored through gill-net catch rates from standardized netting. The percent composition of individuals smaller than 250mm is determined by making scale counts on whitefish subsampled at different depths.	Bear Lake.

General Threats	**Specific Threats**	**General Conservation Actions**	**Specific Conservation Actions**	Priority
Limited distribution	Found only in Bear Lake, typically at 40m and shallower	Population Monitoring and Research	Determine population status and trends	H
Human Disturbance	Species may be negatively affected by Increasing human use of Bear Lake for residence and recreation, especially waste water discharges	Habitat Monitoring and Research	Monitor water quality; encourage sewer systems in new development and conversion from septic to sewer systems in existing development	M
Invasive Animal Species	Introduced lake trout	Population Monitoring and Research	Determine productivity and survival and alter lake trout management if required; all alek trout stocked beginning in 2001 and continuing indefinitely are/will be sterile, triploid fish	L
Limited Habitat	Drought may limit available spawning and rearing habitat	Habitat Monitoring and Research	Augment available spawning habitat if feasible	H

Desert Sucker *Catostomus clarki* Tier II Fish	**Biology and Life History**	**Population**	**Distribution**
	Inhabits pools and low-velocity runs of streams. Adapted for herbivory over cobble runs	Apparently common, but population size and trends unknown	Virgin River drainage.

General Threats	**Specific Threats**	**General Conservation Actions**	**Specific Conservation Actions**	Priority
Lack of information	Full extent of distribution unknown	Determine and Map Distribution	Identify conservation populations	L
Invasive Animal Species	Competition with and predation by black bullhead and red shiner	Control and Monitor Invasive Species	Control red shiner, black bullhead, others	H
Habitat Loss	Habitat fragmentation	Determine and Map Distribution	Identify areas that need to be connected and implement appropriate actions	L

Leatherside Chub *Gila copei* Tier II Fish	**Biology and Life History**	**Population**	**Distribution**
	Small to medium sized rivers. Current literature suggests species is most closely related to spinedace (Lepidomeda) species, and that two distinct species are present in Utah. Northern population is more closely related to other spinedace than it is to	Locally stable, but declining or lost in other areas. Some higher elevation Bear River populations stable. Museum specimens from lower Bear River drainage north of Great Salt Lake, but not currently known from this location. Limited distribution in Web	Northern population inhabits Weber and Bear river drainages and may inhabit Snake River drainage. Southern population inhabits Provo and Sevier river drainages.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Taxonomic debate	Ongoing taxanomic debate; 2 or more species possible in UT	Population Monitoring and Research	Synthesize and summarize available literature to clarify taxonomy. Available literature on this subject has been accumulating in recent years.	H
Invasive Animal Species	Brown trout limiting in some areas	Determine and Address Factors Limiting Recovery	Determine conditions for co-existence and replicate	H
Human Disturbance	Dewatering for agriculture	Protect Significant Areas	Provide and protect flows	M

Longnose Dace *Rhinichthys cataractae* Tier III Fish	**Biology and Life History**	**Population**	**Distribution**
	variety of habitats, mostly in lentic waters or can inhabit turbulent streams	Apparently stable, but population size and trends unknown	Widely distributed in diverse habitats, mostly located in the Northeastern part of the Bonneville system in the Great Basin.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of information	Lost in some historic drainages	Population Monitoring and Research	Determine population status and trends	M
Lack of Information	Current distribution not well described	Determine and Map Distribution	Survey historic waters and suitable habitats	M

Paiute Sculpin *Cottus beldingi* Tier III Fish	**Biology and Life History**	**Population**	**Distribution**
	Prefers clear, cold streams with rocky substrate. Commonly found with trout.	Limited information. Actual numbers unknown.	Found in Weber, Bear, Logan and Blacksmith Fork Rivers. Also found in Sevier River (Piute County) and Thistle Creek validity unconfirmed.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of information	Lost in some historic drainages	Determine and Map Distribution	Determine extent of distribution	H
Lack of Information	Taxanomic debate; populations may be distinct	Population Monitoring and Research	Study by qualified investigator needed to clarify taxonomy	L
Lack of Information	Population status and trends unknown	Population Monitoring and Research	Determine population status and trends	H

Redside Shiner *Richardsonius balteatus* Tier III Fish	**Biology and Life History**	**Population**	**Distribution**
	mostly in lentic waters but can also be found in streams and irrigation ditches.	Population size and trends unknown.	Great Basin drainages.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of information	Lost in some historic drainages	Determine and Map Distribution	Determine extent of distribution in Utah	H
Lack of Information	Population status and trends unknown	Population Monitoring and Research	Determine population status and trends	H

Speckled Dace *Rhinichthys osculus* Tier III Fish	**Biology and Life History**	**Population**	**Distribution**
	Found mostly in loctic water, but can tolerate diverse habitats. Is the only fish species that is native to all the major western drainage systems	population size and trends unknown	Widely distributed in diverse habitats in the western United States.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of information	Lost in some historic drainages	Determine and Map Distribution	Determine extent of distribution in Utah	M
Lack of Information	Ongoing taxanomic debate; literature from last two decades indicates that populations may be distinct. Different distinct populations recognized in Nevada.	Population Monitoring and Research	Study by qualified investigator needed to clarify taxonomy	M
Lack of Information	Population status and trends unknown	Population Monitoring and Research	Determine population status and trends	M

Utah Chub *Gila atraria* Tier III Fish	**Biology and Life History**	**Population**	**Distribution**
	primarily in lentic waters	population size and trends unknown	Found in a wide variety of habitats throughout Utah.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Poisons	Poisoned by chemical control	Population Monitoring and Research	Evaluate population response to change	H
Lack of Information	Taxanomic debate; populations may be distinct as in NV	Population Monitoring and Research	Study by qualified investigator needed to clarify taxonomy	M
Lack of Information	Complete distribution not well described	Determine and Map Distribution	Determine extent of distribution in Utah	H

Utah Lake Sculpin - extinct *Cottus echinatus* Tier III Fish	**Biology and Life History**	**Population**	**Distribution**
	deep lentic waters	Population may be extinct	Native to Utah Lake.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of information	May be extinct	Determine and Map Distribution	Monitor for trend information	L
Lack of Information	Taxanomic debate; populations may be distinct	Population Monitoring and Research	Study by qualified investigator needed to clarify taxonomy	L

Utah Sucker *Catostomus ardens* Tier III Fish	**Biology and Life History**	**Population**	**Distribution**
	Lotic water	Population size and trend unknown	Northern-central Utah rivers, streams and lakes.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of information	Reduced in some historic drainages	Determine and Map Distribution	Determine extent of distribution in Utah	H
Lack of Information	Taxanomic debate; UT L. populations may be distinct	Population Monitoring and Research	Study by qualified investigator to clarify taxonomy initiated 2002	H
Lack of Information	Status and trend of population not well known	Population Monitoring and Research	Determine population status and trends	H

Yellowstone Cutthroat Trout *Oncorhynchus clarki bouvieri* Tier II Fish	**Biology and Life History**	**Population**	**Distribution**
	clear, cold streams, small rivers and lakes	population size and trends unknown	Raft River drainage and in Goose Creek in Box Elder County.

General Threats	**Specific Threats**	**General Conservation Actions**	**Specific Conservation Actions**	Priority
Hybridization	Loss of genetic integrity through cross-breeding with rainbow trout	Control and Monitor Invasive Species	Segregate populations as possible, e.g., barriers	H
Disease	Whirling disease	Test and Monitor Disease	Segregate populations as possible, e.g., barriers	H
Human Disturbance	Stock watering in streams	Restore Degraded Habitats	Provide enclosures and control stock watering	H

Mammals

Abert's Squirrel *Sciurus aberti* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Dependant upon Ponderosa Pine habitat, hypogeous fungi as primary food source (G.O. 1997)	Abundance is low in Utah due to limited distribution. 3 possible disjunct populations in San Juan and Grand counties. Boschen (1986) estimated that population had increased following his study	3 areas in San Juan county. (Principally the Abajo Mountains)

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	Limited distribution in Utah; 3 discontinuous populations vulnerable to extirpation;	Population Monitoring and Research	Determine status of populations in Utah;	H
Human Disturbance	Logging efforts remove mature Ponderosa stands and primary food source (hypogeous fungi)	Control and Monitor Disturbance	Manage logging practices in areas of species distribution in accordance with management recommendations	M

Allen's Big-eared Bat *Idionycteris phyllotis* Tier II	**Biology and Life History**	**Population**	**Distribution**
	Reported from a wide range of habitats. Maternity colonies have been located in mine tunnels and boulder piles.	One of the two rarest bats in Utah, approx. 11 specimens recorded. Population trend unknown Some maternity colonies have disappeared	Occurs in southern third of state. Known in Grand, San Juan, Washington, Garfield and Kane Counties

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human Disturbance	Human disturbance to roosting sites and mine closure;	Control and Monitor Disturbance	Limit human disturbance to roosting sites (particularly maternity colonies); employ current recommendations for mine closure, survey, and construction of bat gates	H
Environmental Contaminant	Pesticide use in foraging areas	Population Monitoring and Research	Determine effects of pesticide use in important foraging areas on population viability and survivorship	L
Lack of Information	Information needed on current population status and trend	Population Monitoring and Research	Determine current population status and trend	H
Development	Major roosts threatened by road development and highway relocation	Permanent Conservation of Habitat		

American Marten *Martes americana* Tier III	**Biology and Life History**	**Population**	**Distribution**
	The males are solitary, associating with females only in July and August. The young are born and raised in grass-lined nests in hollow trees or in cavities in rocks.	Abundance in Utah considered low. Hargis (1991) captured 19 individuals.	Distributed in the eastern mountainous regions of the state.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Population status and trend unknown	Population Monitoring and Research	Determine population status and trend	H
Development	Road construction	Control and Monitor Disturbance		
Habitat Loss	Logging where spruce-fir forests are not protected	Control and Monitor Disturbance		

American Pika *Ochotona princeps* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Found in high mountainous regions. Pikas are highly social and live in large colonies usually associated with boulder fields or rock slides.	Population in the state of Utah is low due to habitat discontinuity. Population trend unknown.	Discontinuously distributed throughout the mountain regions of Utah

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	Populations distributed discontinuously throughout the state; vulnerable to local extirpation	Population Monitoring and Research	Determine productivity and survivorship at known locations	H
Lack of Information	Habitat destruction may be a threat but some human disturbance is seemingly beneficial	Habitat Monitoring and Research		

Big Free-tailed Bat *Nyctinomops macrotis* Tier II	**Biology and Life History**	**Population**	**Distribution**
	Inhabit rugged rocky environments as well and sagebrush flats. May migrate from northern regions for the winter months.	Fairly rare (Zeveloff) At least 34 known specimens. Population trend unknown (G.O.). Represents .5-3.4% of bat captures (G.O.)	Southwest and Southeast corners of the state, as well and south-central area. Distribution may be fairly fragmented (Barber and Davis 1969).

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Environmental Contaminant	Pesticide use in foraging areas	Population Monitoring and Research	Determine effects of pesticide use in important foraging areas on population viability and survivorship	M
Harvest	Scientific collecting	Determine Factors Limiting Recovery		
Limited Distribution	Limited to southern Utah but does not occur in many places where habitat seems suitable	Population Monitoring and Research		

Dark Kangaroo Mouse *Microdipodops megacephalus* Tier II	**Biology and Life History**	**Population**	**Distribution**
	The two races that occur in Utah are endemic to the state (G.O.).	Seemingly rare in Utah. Only eight localities in Utah. Population appears to have declined since 1960 (Eric Rickart pers. comm. 1997)	Occurs only in the desert areas of Toole, Juab, Millard and Beaver counties. Overall range is patchy and somewhat discontinuous. Substantial amount of overall range occurs in Utah (Zeveloff).

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
High % of Global Population	Substantial amount of overall range occurs in Utah; Drastic large-scale habitat change has occurred in known areas of occurrence;	Population Monitoring and Research	Determine current population status and distribution	L
Lack of Information	information needed on impacts of habitat changes on population viability	Population Monitoring and Research	Evaluate effect of large scale habitat changes on populations in Utah	M
Habitat Loss	Drastic habitat changes due to invasive grass species and increase in wildfire frequency	Habitat Monitoring and Research		

Desert Kangaroo Rat *Dipodomys deserti* Tier III	**Biology and Life History**	**Population**	**Distribution**
	This species occupies washes and riverbeds with loose shifting sand.	Population has declined somewhat due to loss of habitat.	Limited to one location in Utah. (Beaver Dam Wash, WA county) Occupy W. Nevada, S. California and into adjacent Mexico (Zeveloff).

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	Limited to Beaver Dam Wash in Washington Co.; vulnerable to periodic flooding and extirpation	Population Monitoring and Research	Monitor population status, productivity and survival;	M
Environmental Contaminant	Indiscriminate use of poisons to control gophers poses significant threat to species;	Education and Outreach	Educate the public on detrimental effects of indiscriminate use of poisons;	M

Desert Shrew *Notiosorex crawfordi* Tier III	**Biology and Life History**	**Population**	**Distribution**
	In Utah this species occurs in semidesert scrub communities with plants such as mesquite or agave. Rely on woodrat dens for shelter.	Only three known occurrences in Utah (Wauer 1965) Seemingly very rare. Population trend not known.	Occurs in two known localities in Utah (Washington County and near St. George)

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Only three known occurrences in Utah. Population status and threats are unknown.	Population Monitoring and Research	Determine population distribution and status.	M

Dwarf Shrew *Sorex nanus* Tier III	**Biology and Life History**	**Population**	**Distribution**
	High-elevation species prefers alpine or subalpine rockslides	Four individuals reported for the state (Durrant and Lee 1955). Population trends unknown.	Known only from Abajo Mountains and Uinta Mountains

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Known only from Abajo and Uintah Mountains.; Population status and trends unknown.	Population Monitoring and Research	Determine population distribution and status.	M

Fringed Myotis *Myotis thysanodes* Tier II	**Biology and Life History**	**Population**	**Distribution**
	Inhabits a wide range of habitats including desert scrub and fir stands. Specialize in beetle foraging. Often roosts in human habitations.	Apparently rare in Utah. 21 individuals recorded (Hasenyager 1980) Population trend unknown. Approx. 4% of captures. May be more common than originally thought or may be local effect.	Widely distributed in Utah. Specimens taken from 6 counties mostly in the southern and southeastern regions of the state.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human Disturbance	Human disturbance to roosting sites and maternity colonies	Control and Monitor Disturbance	Limit human disturbance to roosting sites (particularly maternity colonies);	H
Lack of Information	Information needed on current population status, trend, and response to habitat alteration	Population Monitoring and Research	Determine current population status, trend, and response to modification of foraging areas in riparian zones	H
Habitat Loss	Destruction of riparian zones	Habitat Monitoring and Research		

Gunnison's Prairie-dog *Cynomys gunnisoni* Tier II	**Biology and Life History**	**Population**	**Distribution**
	Found in open grassy and brushy areas of high mountain valleys and lower dry habitats associated with white-tailed prairie dogs.		Range centered in the four corners area. In Utah, this species is found in San Juan county.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Disease	Outbreaks of sylvatic plague have decimated populations;	Test and Monitor Disease	Determine long-term effects of plague on prairie dog colonies; monitor population status, trend, and survivorship	M
Environmental Contaminant	Rodenticide and agricultural control measures negatively impact populations	Population Monitoring and Research	Determine effects of agricultural control, evaluate population response to change and determine factors limiting recovery	H
Habitat Loss				
Harvest				

Idaho Pocket Gopher *Thomomys idahoensis* Tier III	**Biology and Life History**	**Population**	**Distribution**

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority

Kit Fox *Vulpes macrotis* Tier II	**Biology and Life History**	**Population**	**Distribution**
	Primarily a Southwestern species, they inhabit deserts and semi-arid regions. Reported to be monogamous and may mate for life.		Fairly widely distributed in the desert regions of Utah.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Harvest	Indiscriminate trapping threatens this species;	Control and Monitor Disturbance	Control trapping in areas of known occurrence; educate public on detrimental impacts of indiscriminate trapping on kit fox populations	H
Environmental Contaminant	Bioaccumulation of rodenticides	Population Monitoring and Research	Determine impact of rodenticide accumulation on Kit Fox populations	L
Invasive Animal Species				
Lack of Information				

Merriam's Shrew *Sorex merriami* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Typically prefers dry habitats, some association with vole colonies	Nine specimens reported for Utah (Osgood 1909). Population trend unknown.	Presumed statewide. Confirmed in Beaver, San Juan, and Rich counties

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Only nine specimens reported in Utah. Presumed statewide but actual distribution unknown. Overgrazing may be a potential threat.	Population Monitoring and Research	Determine population distribution and status; response to grazing	M

Mexican Vole *Microtus mexicanus* Tier II	**Biology and Life History**	**Population**	**Distribution**
	The race that occurs in Utah is nearly endemic to the state.	Population has apparently declined since the 1930's (Spicer 1987)	Occurs only on one mountain in extreme southwestern San Juan county near Arizona border.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
High % of Global Population	Occurs in only one mountain area in extreme southern San Juan County;	Population Monitoring and Research	Determine current population status, trend, and distribution in Utah;	H
Habitat Loss	Habitat degradation by heavy grazing of sheep in known area of occurrence threatens this species	Habitat Monitoring and Research	Determine effect of grazing on population status and survivorship	M

Mule Deer *Odocoileus hemionus* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Mating occurs in late fall, and females may produce a litter of one or two fawns in late spring or early summer. Mule deer are browsers that primarily eat shrubs and other woody material, although grasses are also consumed.	Widespread throughout Utah in high numbers. Species has experienced recent declines.	Occurs in the western half of North America, from southeastern Alaska to Mexico. The species is common state-wide in Utah, where it can be found in many types of habitat, ranging from open deserts to high mountains to urban areas.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Populations have experience recent declines	Population Monitoring and Research	Determine population status and trend; explore possible reasons for decline	
Habitat Loss	Loss of lower elevation winter range can devistate this species	Habitat Monitoring and Research		

Northern Flying Squirrel *Glaucomys sabrinus* Tier III	**Biology and Life History**	**Population**	**Distribution**
		Fairly common. Population trend unknown but likely stable.	Widespread in the mountains of central Utah High Plateaus, Wasatch Mountains and Uinta Mountains; fairly common in some areas (G.O.)

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Population status and trend unknown; response to logging and forest fires unknown	Population Monitoring and Research	Determine population status, trend, and response to disturbance	H

Northern River Otter *Lontra canadensis* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Prefer bodies of water that have a diversity of shoreline habitats and suitable dens sites.	Natural abundance very low, though reintroduction has increased population size. 58 records of otters during 1978-1988 (Bich 1988) Natural populations believed to be declining.	Possibly as many as 18 natural locations in the state including Grand, Box Elder, Wasatch and San Juan counties.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Water Development	Stream alteration and diversion of water for irrigation and agriculture.	Control and Monitor Disturbance	Manage water diversion/alteration to minimize impacts to otters.	H
Harvest	Inadvertent trapping, though collection of this species is regulated	Control and Monitor Disturbance	Determine effect of inadvertent trapping on populations	H

Northern Rock Mouse *Peromyscus nasutus* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Found in brushy habitats within rock outcroppings.	Known in Utah from a single individual collected in 1930 at Rainbow Bridge. Population trend unknown	Distribution largely unknown. One individual captured at Rainbow Bridge Inventory needed.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Population status and distribution unknown.	Population Monitoring and Research	Determine population distribution and status	M

Olive-backed Pocket Mouse *Perognathus fasciatus* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Inhabits open country, often in sandy soil (Zeveloff).	Two known localities (Hayward and Killpack 1956) Population trend unknown.	Barely enters the extreme northeast corner of Utah.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Population status and trend unknown	Population Monitoring and Research	Determine population status and trend	L

Preble's Shrew *Sorex preblei* Tier II	**Biology and Life History**	**Population**	**Distribution**
	Associated with wetland habitats	Four specimens reported for Utah (Tomasi and Hoffmann 1984, Pretchett and Pederson 1993) Population trend unknown.	Known from two localities in Tooele County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Information needed on current status of population in Utah	Population Monitoring and Research	Determine current population status and distribution in Utah	M
Habitat Loss	Degradation due to presence of livestock	Habitat Monitoring and Research		
Human Disturbance	Mosquito abatement	Population Monitoring and Research	Evaluate population responses to change	M
Environmental Contaminant	Agricultural runnoff	Habitat Monitoring and Research		

Pygmy Rabbit *Brachylagus idahoensis* Tier II	**Biology and Life History**	**Population**	**Distribution**
	Pygmy rabbits are largely dependant upon large sagebrush (A. tridentata) for both food and cover.		Almost the entire distribution of this species occurs within the intermountain west; a substantial portion in Utah.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
High % of Global Population	Almost entire distribution of this species occurs within the intermountain west; a substantial portion of population occurs in Utah	Population Monitoring and Research	Determine population status and distribution in Utah as well as habitat requirements and response to habitat alteration	H
Habitat loss	Loss and/or deterioration of sagebrush habitat	Habitat Monitoring and Research	Determine the specific habitat requirements of the species and monitor population responses to habitat change / alteration	H
Lack of Information		Population Monitoring and Research		

Silky Pocket Mouse *Perognathus flavus* Tier II	**Biology and Life History**	**Population**	**Distribution**
	Presence of grassy cover important for this species (Best and Skupski 1994)	Very rare. Five reported localities in Utah. Population trend unknown. 16 total specimens have been reported (Durrant 1952)	Southeast corner of Utah in San Juan County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Information needed on current population status and trends in Utah	Population Monitoring and Research	Determine current population status and distribution in Utah	M

Spotted Bat *Euderma maculatum* Tier II	**Biology and Life History**	**Population**	**Distribution**
	A relatively solitary species, but may roost in small groups. Found in a variety of habitats.	Thought to be rare but detailed information on population size lacking. May be less prone to mist netting. (.02-4.5% of captures)	Fairly widely distributed throughout the intermountain west. May be distributed statewide but records from western and northern Utah missing.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Environmental Contaminant	Use of pesticides to control Mormon crickets and grasshoppers may adversely affect prey base	Evaluate Population Responses to change	Determine impact of pesticide usage on population	H
Human Disturbance	Recreational rock climbing may affect species on a local level	Control and Monitor Disturbance		
Harvest	Bats are susceptible to injury during population monitoring using mist nets	Control and Monitor Disturbance		
Human Disturbance	Increased risk of predation to bats released diurnally by researchers	Control and Monitor Disturbance	Regulate research protocols for this species	

Spotted Ground Squirrel *Spermophilus spilosoma* Tier III	**Biology and Life History**	**Population**	**Distribution**
	High-desert species. Habitat has dry, sandy soils and sparse shrubby vegetation.	Rare in Utah. Only 1 specimen examined.	Known from 3 localities all in San Juan county.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Population status unknown; only one specimen examined in Utah	Population Monitoring and Research	Determine current population status, distribution, and trend	M

Stephen's Woodrat *Neotoma stephensi* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Associated with rock piles in Pinyon-juniper habitat.	Abundance low in Utah based on only six individuals collected in the state.	Barely enters San Juan county near the Arizona border. Overall distribution in S.W. United States small. Utah distribution represents a large percentage of overall distribution (Salmon and Gorenzec 1994).

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	Utah distribution represents a large portion of species' global distribution	Population Monitoring and Research	Determine population status and productivity/survival	H

Thirteen-lined Ground Squirrel *Spermophilus tridecemlineatus* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Often occur in grasslands with well-drained soil.	13 possible specimens for the state. Anecdotal evidence suggest significant population decline possible extirpation.	Occurs in the Uintah Basin in Uintah and Duchesne county.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Information needed on population status and trend; Anecdotal evidence suggests significant population decline/possible extirpation	Population Monitoring and Research	Determine current population status and trend	H

Townsend's Big-eared Bat *Plecotus townsendii* Tier II	**Biology and Life History**	**Population**	**Distribution**
	Often found in scrub communities and pinyon-juniper habitats. Maternity colonies are located the warmer portions of mines, caves, and buildings.	Moderately common. Specimens may exceed 100. Thought to be declining (G.O.)	Occurs statewide. Recorded in 19 counties (Hasenyager 1980)

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human Disturbance	Particularly sensitive to human disturbance, especially maternity colonies	Control and Monitor Disturbance	Limit and control disturbance at know roosting sites particularly at maternity colonies;	H
Habitat Loss	Adversely affected by mine closures	Restore Degraded Habitats	Determine impact of mine closures on population; Employ current recommendations for mine closure including survey and construction of bat gates	H
Lack of Information	Ongoing taxanomic debate about appropriate genus name	Population Monitoring and Research		

Western Red Bat *Lasiurus blossevillii* Tier II	**Biology and Life History**	**Population**	**Distribution**
	Roost in deciduous trees; usually those with large broad leaves.	Rarest bat in Utah, only fourteen specimens recorded. Population trend unknown.	Most specimens recorded in Washington County except one occurrence in Carbon County and verbal reports in north-central Utah.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human Disturbance	Sensitive to human disturbance in caves and mines;	Control and Monitor Disturbance	Limit and control disturbance at known roosting sites particularly at maternity colonies;	H
Lack of Information	Information needed on the impact of riparian modification/degradation on population	Protect Significant Areas	Determine impact of riparian destruction and degradation on prey base availability and population status	M
Lack of information	Ongoing taxanomic debate, still considered by some to be conspecific with similar species	Population Monitoring and Research	Determine behavioral, physiological, and genetic differences between species	

White-tailed Prairie-dog *Cynomys leucurus* Tier II	**Biology and Life History**	**Population**	**Distribution**

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Disease	Outbreaks of sylvatic plague have decimated populations;	Test and Monitor Disease	Determine long-term effects of plague on prairie dog colonies; monitor population status, trend, and survivorship	H
Environmental Contaminant	Rodenticide and agricultural control measures negatively impact populations	Population Monitoring and Research	Determine effects of agricultural control, determine factors limiting recovery	H
Habitat Loss				
Harvest				

Wolverine *Gulo gulo* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Females are believed to be monestrous and, in the wild, breed from May to August. Wolverines exhibit delayed implantation with females giving birth before late March.	Possibly extirpated from Utah. Recent sightings suggest may still be extant in the state.	May still be present in parts of the Wasatch and Unita mountains as well as mountains in Sanpete county.

General Threats	**Specific Threats**	**General Conservation Actions**	**Specific Conservation Actions**	**Priority**
Lack of Information	Species possibly extirpated from state. Current status unknown	Population Monitoring and Research	Survey habitat to determine current population status in Utah	H
Development	Habitat alteration due to road construction	Habitat Monitoring and Research		

Wyoming Ground Squirrel *Spermophilus elegans* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Occupies greasewood sagebrush habitat (Hansen 1953)	6 localities reported for Utah (Hansen 1953) Population trend unknown (likely stable)	Known only from areas along the Wyoming border

General Threats	**Specific Threats**	**General Conservation Actions**	**Specific Conservation Actions**	**Priority**
Lack of Information	Population trends and status are unknown;	Population Monitoring and Research	Determine population status and trend;	M
Disease	anecdotally reported as declining; Adversely affected by plague	Test and Monitor Disease	Determine effects of plaque on survivorship;	M
Environmental Contaminant	poisoned in some areas	Determine Factors Limiting Recovery	Determine effects of poisoning on population	M
Habitat Loss	Degradation and destruction of shrubsteppe habitat	Habitat Monitoring and Research		

Yuma Myotis *Myotis yumaensis* Tier III	**Biology and Life History**	**Population**	**Distribution**
	Forage near waterways. Females roost in large nursery colonies found in caves and tunnels.	Uncommon in Utah, though may be more abundant in southern regions of the state. (Oliver 2000). Hardy (1941) ranked this the second rarest species in Utah. Other rankings have been much more variable (Oliver 2000).	Occurs throughout most of the state. Has not been collected in the northwest corner of the state or in the northernmost part of north-central Utah (Oliver 2000).

General Threats	Specific Threats	**General Conservation Actions**	Specific Conservation Actions	Priority
Human Disturbance	Direct human disturbance of nursery colonies, mine closures, pest control activities, and overgrazing	Control and Monitor Disturbance	Determine effects of human disturbance on colonies, survey mines prior to gating (using bat gates where possible), manage grazing in riparian areas	H
Hybridization	Reported hybridization with with closely related species in western North America	Population Monitoring and Research	Determine extent of hybridization and impacts on population	

Mollusks

Bear Lake Springsnail *Pyrgulopsis pilsbryana* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Found in springs and associated waters.	Believed common in Utah, though of limited distribution.	Bear Lake Basin, extreme north-central Utah

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	3 known populations today	Population Monitoring and Research	Determine population status and trends	H
Human Disturbance	May be affected by overgrazing and irrigation practices	Restore Degraded Habitat	Remove agricultural water downstream of species' habitat	H
Habitat Loss	Habitat degradation	Conserve Suitable Habitat	Provide enclosures	H

Bifid Duct Pyrg *Pyrgulopsis peculiaris* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Spring obligate species.	Population size and trends unknown.	Millard County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	6 known populations today	Population Monitoring and Research	Determine population status and trends	H
Human Disturbance	Affected by overgrazing and irrigation practices	Restore Degraded Habitat	Remove agricultural water downstream of habitat	H
HabitatLoss	Habitat degradation	Conserve Suitable Habitat	Provide enclosures	H

Black Canyon Pyrg *Pyrgulopsis plicata* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Occurs in small flowering springs flowing from a steep hillside.	Species believed rare in Utah.	Black Canyon in Garfield County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	Known from one location only	Population Monitoring and Research	Determine population status and trends	H
High Percent of Global Population	Known from one location only	Determine and Map Distribution	Expand search for additional populations	L
Habitat Loss	Agricultural practices, especially grazing, may negatively affect	Conserve Suitable Habitat	Provide enclosures	H

Black Gloss *Zonitoides nitidus* Tier III Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Occurs on the moist banks of streams at the water's edge.	Populations are reportedly small and localized. Occurs in the north-central part of the state. Population trend is unknown.	Literature reports occurrences in 6 locations in the Wasatch Mountains in 5 counties, Cache, Weber, Summit, Salt Lake and Utah. Current information is needed as last reports of population were from 1942

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Referenced in literature but current populations unknown	Population Monitoring and Research	Survey to determine if extant; determine population status and trends	H
Habitat Loss	Human activities, especially agricultural practices, may negatively affect	Conserve Suitable Habitat	Determine if populations are at risk and protect habitat as necessary	H

Brian Head Mountainsnail *Oreohelix parawanensis* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Occurs at high elevations near the tree line.	Population size and trends unknown.	Iron County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	Known from one location only	Population Monitoring and Research	Determine population status and trends	H
High Percent of Global Population	Known from one location only	Determine and Map Distribution	Expand search for additional populations	L
Habitat Loss	Destruction or alteration of habitat by overgrazing	Conserve Suitable Habitat	Provide enclosures	H

California Floater *Anodonta californiensis* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Found in lakes and ponds.	Known populations are very small.	Bonneville Basin

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Extent of distribution unknown	Determine and Map Distribution	Identify conservation populations; determine population status and trends	H
Lack of Information	Ongoing taxanomic debate; there may be two or more distinct species in Utah	Population Monitoring and Research	Study by qualified investigator needed to clarify taxonomy	H
Human Disturbance	Water withdrawals, agricultural practices	Protect significant areas	Provide enclosures	H
Invasive Animal Species	Specific fish hosts may be required; invasive species may interfere with reproduction	Population Monitoring and Research	Monitor productivity in areas with introduced species; research host specificity requirements	H
Habitat Loss	Habitat degradation	Conserve Suitable Habitat	Provide enclosures	H
Hydribization	Loss of genetic diversity due to inbreeding	Population Monitoring and Research	Determine extent of hybridization and degree of threat to existing population	M

Carinate Glenwood Pyrg *Pyrgulopsis inopinata* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Found in spring habitats.	Population size and trends unknown.	Sevier County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	2 known populations today	Population Monitoring and Research	Determine population status and trends	H
Human Disturbance	Habitat degredation due to recreation	Protect Significant Areas	Provide enclosures	H

Cloaked Physa *Physa megalochlamys* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Occurs in marshland habitats and ponds.	Population size and trends unknown.	Snake Valley in northwestern Millard County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	Known from one location only	Population Monitoring and Research	Determine population status and trends	H
Habitat Loss	Habitat degradation	Conserve Suitable Habitat	Provide enclosures	H

Creeping Ancylid *Ferrissia rivularis* Tier III Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Collections of dead specimens suggest that they occur in spring-fed marshes, rivers and a somewhat saline freshwater lake, but no specific habitat data on live specimens has been reported.	Five known occurrences of this species in the north-central and west-central parts of the state. Believed to be very uncommon in the state.	Occurs in Utah, Morgan, Juab and Millard Counties. Thes is limited information available. More information is needed to determine current status and distribution of this species in the state.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Referenced in literature but current populations unknown	Population Monitoring and Research	Determine population status and trends	H
Habitat Loss	Marsh habitat threatened by draining and burning	Conserve Suitable Habitat	Protect identified populations with enclosures or other means	H

Cross Snaggletooth *Gastrocopta quadridens* Tier III Mollusk	**Biology and Life History**	**Population**	**Distribution**
	No habitat information has been reported due to difficulty in detecting live specimens. Two historical occurrences were noted at high elevations.	Two historical occurrences from north-central and south-central Utah. Population trend and abundance are unkown. There have been no surveys for this species since the early 1930's.	Species found at Fish Lake, Sevier County and in Lamb's Canyon, Salt Lake County. More information is needed to determine current status and dsitribution of this species in the state.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Referenced in literature but current populations unknown	Determine and Map Distribution	Survey to determine if extant	H

Deseret Mountainsnail *Oreohelix peripherica* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Associated with limestone outcrops or other soils with high calcium concentrations.	13 colonies reported in Utah.	Box Elder, Cache and Weber Counties

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	Known from only 13 locations	Population Monitoring and Research	Determine population status and trends	H
Lack of Information	Ongoing taxanomic debate; populations may include subspecies	Population Monitoring and Research	Study by qualified investigator needed to clarify taxonomy	M
Habitat Loss	Habitat alteration due to forest fires	Protect Significant Areas	Provide enclosures	H

Desert Springsnail *Pyrgulopsis deserta* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Spring obligate species.	Population size and trends unknown.	Virgin River Basin and Washington County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	6 known populations today	Population Monitoring and Research	Determine population status and trends	H
Lack of Information	Distribution not well known	Determine and Map Distribution	Expand search for additional populations	L
Habitat Loss	Habitat degradation	Conserve Suitable Habitat	Provide enclosures	H

Eureka Mountainsnail *Oreohelix eurekensis* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Found in shrubland and forested habitats.	4 known populations in Utah.	western portion of Tooele & Juab counties and in northern Grand County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human Disturbance	Affected by cattle grazing and potentially by timber harvest	Protect Significant Areas	Provide enclosures	H
Limited Distribution	Only one site known with few individuals	Population Monitoring and Research	Determine population status and trends	H
Habitat Loss	Destruction or alteration of habitat due to mining activities and forest fires	Conserve Suitable Habitat	Provide enclosures	H

Glass Physa *Physa skinneri* Tier III Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Found in shallow bodies of water such as ponds, swales, sloughs, and backwaters along streams.	Seven historical occurrences noted, mainly form north-central Utah with 2 localities in the south-central part of the state. There is no current information on population trends or abundance.	Reported to occur in Rich, Davis, Salt Lake, extreme western Sumit and Sevier Counties

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	7 sites recorded	Population Monitoring and Research	Survey historic sites to confirm presence; determine population status and trends	H
Human Disturbance	Urban expansion close to known locations	Protect Significant Areas	Provide enclosures	H

Glossy Valvata *Valvata humeralis* Tier III Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Occurs in ditches, springs outflows and spring source pools at Fish Springs National WMA. Also occurs in several lakes and one reservoir in Utah.	At least 12 reported occurrences from 8 counties in central and western Utah. In 4 individual collections between 1929 and 1986, stable populations were indicated, but these locations have not been sampled since the original surveys.	Known to occur in Kane, Sevier, Utah Wasatch, Rich and Box Elder Counties and Tooele County. Most recently reported in Fish Springs National Wildlife Refuge in Juab County.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	Known from limited number of sites	Population Monitoring and Research	Survey known sites to confirm presence and determine population monitoring and trends	H
Water Development	Increases in water demands could negatively affect	Protect Significant Areas	Provide alternative water delivery systems, if needed	M

Hamlin Valley Pyrg *Pyrgulopsis hamlinensis* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Occurs in habitats produced by outflow of small springs.	Population size and trends unknown.	western Beaver County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribtuion	Known from one location only	Population Monitoring and Research	Determine population status and trends	H
Human Disturbance	Habitat degradation due to overgrazing by livestock	Protect Significant Areas	Provide enclosures	H

Longitudinal Gland Pyrg *Pyrgulopsis anguina* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Found in warm flowing springs.	Population size and trends unknown.	Northwestern Millard County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	2 known populations today	Population Monitoring and Research	Determine population status and trends	H
Human Disturbancee	Affected by grazing and irrigation practices	Protect Significant Areas	Provide enclosures	H

Lyrate Mountainsnail *Oreohelix haydeni* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Associated with limestone outcrops or other soils with high calcium concentrations.	21 colonies reported in Utah.	Cache, Rich, Weber, Morgan, Salt Lake and Tooele counties

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human Disturbance	Habitat degradation due to grazing and mining practices	Protect Significant Areas	Provide enclosures for identified colonies protecting suitable habitat	H
Lack of information	Populations' status not well known	Population Monitoring and Research	Determine population status and trends	H

Mill Creek Mountainsnail *Oreohelix howardi* Tier III Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Found only on north-facing slopes within moist coniferous forests.	Three occurances noted. In Utah, species is common and populations are stable.	Noted to only occur in Mill Creek Canyon, Salt Lake County. Proximity to large urban population increases risk of human disturbance to population.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	Found only in Mill Creek Canyon	Protect Significant Areas	Provide enclosures	H
Human Disturbance	Recreation	Protect Significant Areas	Provide enclosures	H
Lack of Information	Ongoing taxanomic debate; may be distinct populations	Population Monitoring and Research	Study by qualified investigator needed to clarify taxonomy	H

Montane Snaggletooth *Gastrocopta pilsbryana* Tier III Mollusk	**Biology and Life History**	**Population**	**Distribution**
	No specific habitat data from live specimens has been recorded. One empty shell was found in 1929 in Cedar Canyon, on the south side near a tributary stream that had high banks.	Only two known occurrences of this species in southern Utah. Species believed to be rare, but perhaps only because there have been no reports since 1929.	Specimens reported from Garfield and Iron Counties.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Referenced in literature but current populations unknown	Determine and Map Distribution	Survey to determine if extant	H

Ninemile Pyrg *Pyrgulopsis nonaria* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Occurs in spring habitats.	Population size and trends unknown.	Ninemile Reservoir in Sanpete County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	2 known populations today	Population Monitoring and Research	Determine population status and trendds	H
Human Disturbance	Reservoir may have inundated population	Determine and Map Distribution	Expand search for additional populations	M
Habitat Loss	Habitat degradation	Conserve Suitable Habitat	Enclose habitat of existing colonies	H

Northwest Bonneville Pyrg *Pyrgulopsis variegata* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Found in habitats produced by springs.	Species is believed common in Utah.	western Box Elder County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	8 known populations today	Determine and Map Distribution	Determine distributional extent	M
Habitat Loss	Habitat degradation	Protect Significant Areas	Provide enclosures and maintain water in known habitats	H
Lack of Information	Population status and trends not well documented.	Population Monitoring and Research	Determine population status and trends	M

Otter Creek Pyrg *Pyrgulopsis fusca* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Associated with habitats produced by outflow of springs.	Population size and trend unknown.	Piute and Sevier Counties

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	3 known populations today	Protect Significant Areas	Provide enclosures	H
Human Disturbance	Affected by overgrazing and irrigation practices	Restore Degraded Habitats	Remove agricultural water downstream of habitat	H
Habitat Loss	Habitat degradation	Conserve Suitable Habitat	Provide enclosures	H
Lack of Information	Population status and trends not well documented	Population Monitoring and Research	Determine population status and trends	H

Ovate Vertigo *Vertigo ovata* Tier III Mollusk	**Biology and Life History**	**Population**	**Distribution**
	One noted occurrence in Utah; no habitat information listed.	One historical report. Actual abundance is unknown. However, since this species is small and easily overlooked, population numbers are hard to determine.	Reported to occur in Fruita, Wayne County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Referenced in literature but current populations unknown	Determine and Map Distribution	Survey to determine if extant	H

Ribbed Dagger *Pupoides hordaceus* Tier III Mollusk	**Biology and Life History**	**Population**	**Distribution**
	None of the historical reports in Utah provide species habitat. Throughout species range, it is noted to occur in arid plateaus and foothills. Species is known to be small and difficult to sample.	Three noted historical occurrences. Limited information is known of species occurrence in Utah.	Noted to occur in Garfield County with one record statins Wayen and Garfield Counties. More research is needed to determine if species occurs elsewhere in southern Utah.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Referenced in literature but current populations unknown	Determine and Map Distribution	Survey to determine if extant	H

Rocky Mountain Duskysnail *Colligyrus greggi* Tier III Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Inhabits rheocrenes, springs flowing from the ground as streams.	Species only recently discovered in Utah. Noted to commonly occur in only two springs in northern Utah. Population trend unknown.	Only occurs in two springs in Cache County. More information is needed to determine if species is present in other springs in northern Utah

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human Disturbance	Recreation	Protect Significant Areas	Provide enclosures	H
Lack of Information	Population status and trends unknown	Population Monitoring and Research	Determine population status and trends	H

Sharp Sprite *Promenetus exacuous* Tier III Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Mostly found in lakes with one individual reportedly found in a reservoir.	Seven historical occurrences in north-central Utah with one noted in south-central Utah. Noted to be rare. Population is in decline as evidenced by its extirpation from Utah Lake.	Reported to occur in Cache, Weber, Davis, Salt Lake, extreme western Summit and Utah Counties with one noted occurrence in Sevier County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Referenced in literature but current populations unknown	Determine and Map Distribution	Survey to determine if extant	H

Sluice Snaggletooth *Gastrocopta ashmuni* Tier III Mollusk	**Biology and Life History**	**Population**	**Distribution**
	No habitat information has been reported. Likely to occur in leaf litter in mesic canyons and other riparian areas.	Only one historical occurrence. Thought to be rare, only because of lack of data of any kind on this species.	One occrrence was in Zion National Park in Washington County. More information is needed to determine distribution and current status of this species in the state.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Lack of Information	Reference in literature but current populations unknown	Determine and Map Distribution	Survey to determine if extant	H

Smooth Glenwood Pyrg *Pyrgulopsis chamberlini* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Restricted to aquatic habitat produced by two associated springs.	Population size and trends unknown.	Sevier County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	2 known populations today	Determine and Map Distribution	Determine extent of distribution in Utah	H
Human Disturbance	Recreation	Protect Significant Areas	Provide enclosures	H
Habitat Loss	Habitat degradation	Conserve Suitable Habitat	Provide enclosures	H
Lack of Information	Population status and trend unknown	Population Monitoring and Research	Determine population status and trend	H

Southern Bonneville Pyrg *Pyrgulopsis transversa* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Found in habitat produced by springs.	Species is thought to be common in Utah.	Tooele, Utah and Sanpete counties

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	6 known populations today	Population Monitoring and Research	Determine population status and trends	H
Human Disturbance	Habitat degradation due to overgrazing and spring alteration	Restore Degraded Habitat	Remove agricultural water downstream of habitat	M
HabitatLoss	Habitat degradation	Conserve Suitable Habitat	Provide enclosures	M

Southern Tightcoil *Ogaridiscus subrupicola* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Associated with small caves.	Population size and trends unknown.	caves in Utah

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Habitat Loss	Destruction or alteration of habitat due to mining activities	Conserve Suitable Habitat	Provide fencing or other protection of suitable habitat	M

Sub-globose Snake Pyrg *Pyrgulopsis saxatilis* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Found in habitats produced by thermal springs in a single spring complex.	Population size and trends unknown.	Millard County

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	Known from one location only	Protect Significant Areas	Provide enclosures	H
Human Disturbance	Recreation	Protect Significant Areas	Provide enclosures	H
High Percent of Global Population	Known from one location only	Determine and Map Distribution	Expand search for additional populations	L
Habitat Loss	Habitat degradation	Conserve Suitable Habitat	Provide enclosures	H
Lack of Information	Population status and trend unknown	Population monitoring and research	Determine population status and trends	M

Utah Physa *Physella utahensis* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Prefers small pools associated with springs.	4 reported populations in Utah.	Utah, Colorado and Wyoming

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	2 known populations today	Population Monitoring and Research	Determine population status and trends	
Habitat Loss	Habitat degradation	Conserve Suitable Habitat	Provide enclosures	H

Western Pearlshell *Margaritifera falcata* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Occurs in fresh water streams with fast moving waters.	May be extirpated.	native to the northern part of Utah

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Human Disturbance	Habitat dewatering	Protect Significant Areas	Provide enclosures	H
Lack of Information	Current distribution unknown; may be extirpated	Determine and Map Distribution	Determine extent of distribution in Utah	H
Habitat Loss	Habitat degradation	Conserve Suitable Habitat	Provide enclosures	H

Wet-rock Physa *Physella zionis* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Associated with seeps and hanging gardens of vertical sandstone walls.	Population size and trends unknown.	Zion Canyon and Orderville Canyon

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Limited Distribution	2 known populations today	Population Monitoring and Research	Determine population status and trends	H
High Percent of Global Population	Known from two locations only	Determine and Map Distribution	Determine extent of Utah distribution	M
Development	Dewatering of canyons	Control and Monitor Disturbance	Seek opportunities to protect flows	H

Yavapai Mountainsnail *Oreohelix yavapai* Tier II Mollusk	**Biology and Life History**	**Population**	**Distribution**
	Associated with aspens and in rocky habitats.	Population size and trends unknown.	Navajo Moutain and Abajo Mountains in San Juan County

General Threats	**Specific Threats**	**General Conservation Actions**	**Specific Conservation Actions**	Priority
Limited Distribution	One location found in 2004	Population Monitoring and Research	Determine population status and trends	M
Development	Logging practices may have negatively affected	Conserve Suitable Habitat	Provide enclosures	H
Human Disturbance	Recreation	Control and Monitor Disturbance	Provide enclosures	H

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CHAPTER 7 . KEY HABITATS AND COMMUNITIES FOR SPECIES WITH THE GREATEST CONSERVATION NEED

(Element 2)

This chapter of the Utah Comprehensive Wildlife Conservation Strategy (CWCS) identifies key habitats of greatest conservation need, and describes the locations and relative conditions of these habitats. The identification of key habitats is the first step in a process that will ultimately identify and prioritize conservation focus areas within each key habitat type. Conservation actions will then be implemented within the identified focus areas.

HABITAT CATEGORIES

Utah is a large, ecologically diverse state that contains habitats ranging from the low desert scrub of the Mojave Desert, to the wetlands surrounding the Great Salt Lake, to the alpine tundra and coniferous forests of the Uinta and Wasatch Mountains. In order to account for this diversity, utilize the best available GIS data, and maintain consistency with other planning efforts we decided to use the slightly modified GAP habitat categories that are utilized by the already implemented Utah Partners in Flight Avian Conservation Strategy (UTACS) for purposes of the CWCS. The only change to these habitat categories was the splitting of the "water" category into lentic (standing) water and lotic (flowing) water. This change was made in order to better represent the habitat preferences of certain non-avian species, such as fishes. The Utah CWCS habitat categories are listed and described in Table 1.

Table 7.1. Descriptions of Utah Comprehensive Wildlife Conservation Strategy Habitat Categories

HABITAT	% OF TOTAL AREA OF UTAH	DESCRIPTION
RIPARIAN		
Lowland Riparian	**0.2%**	Riparian areas generally <1,670 m (<5,500 ft) elevation; principal woody species include: Fremont cottonwood (*Populus fremontii*), salt cedar (*Tamarix pentandra*), netleaf hackberry (*Celtis reticulata*), velvet ash (*Fraxinus velutina*), desert willow (*Chilopsis linearis*), other willow (*Salix* spp.), and squawbush (*Rhus trilobata*).
Mountain Riparian	**0.2%**	Riparian areas generally >1,670 m (>5,500 ft) elevation; principal woody species include: willow, narrowleaf cottonwood (*Populus angustifolia*), thinleaf alder (*Alnus tenuifolia*), water birch (*Betula occidentalis*), black hawthorn (*Crataegus douglasii*), rocky mountain maple (*Acer glabrum*), red-osier dogwood (*Cornus stolonifera*), and wild rose (*Rosa woodsii*).
Wetland	**0.2%**	Low elevation marsh and wetland areas <1,670 m (<5,500 ft) elevation; principal species include: cattail (*Typha latifolia*), bullrush (*Scirpus* spp.), and sedge (*Carex* spp.).
Wet Meadow	**<0.1%**	Water saturated meadows that include mostly grasses, forbs, sedges, and rushes (*Juncus* spp.) at 1,000-3,000 m (3,300-9,800 ft) elevation. Principal

		species include sedges, rushes, reedgrass (*Calamagrostis* spp.), timothy (*Phleum* spp.), Alpine (?) (*Poa* spp.), hairgrass (*Deschampsia cespitosa*), willowherb (*Epilobium* spp.), cinquefoil (*Potentilla* spp.), saxifrage (*Saxifraga* spp.), etc. Primary associated species include: willow, honeysuckle (*Lonicera* spp.), and water birch.
Playa	**4.4%**	Sand flats and mosaics of sparsely vegetated and barren playa flats at 1,280-1,620 m (4,200-5,300 ft) elevation. Principal vegetation is pickleweed (*Allenrolfea occidentalis*). Primary associated species include: samphire (*Salicornia* spp.), mound saltbush (*Atriplex faleata*), greasewood, saltgrass (*Distichlis stricta*), and seepweed.
SHRUBLANDS		
Shrubsteppe	**13.4%**	Shrubland principally dominated by big sagebrush (*Artemisia tridentata*), black sagebrush (*Artemisia nova*), low sagebrush (*Artemisia arbuscula*), or silver sagebrush (*Artemisia cana*); or dominate sagebrush shrub land and perennial grassland at 750-3,500 m (2,500-11,500 ft) elevation. Principal associated grass species include: bluebunch wheatgrass (*Agropyron spicatum*), needlegrass (*Stipa comata*), sand dropseed (*Sporobolus cryptandrus*), blue grama (*Bouteloua gracillis*), Thurber's needlegrass (*Stipa thurberiana*), western wheatgrass (*Agropyron smithii*), Indian ricegrass (*Oryzopsis hymenoides*), galleta (*Hilaria jamesii*), and cheatgrass (*Bromus tectorum*). Primary associated shrub species include: rabbitbrush (*Chrysothamnus* spp.), snakeweed (*Gutierrezia sarothrae*), winterfat (*Ceratoides lanata*), shadscale (*Atriplex confertifolia*), bitter brush (*Purshia tridentata*), and oak (*Quercus* spp.). Primary associated tree species include: juniper (*Juniperus* spp.), pinyon (*Pinus* spp.), mountain mahogany (*Cerocarpus montanas*), and ponderosa pine (*Pinus ponderosa*).
Mountain Shrub	**1.3%**	Deciduous shrubland at 1,000-3,000 m (3,300-9,800 ft) elevation principally dominated by mountain mahogany, cliff rose (*Cowania mexicana*), bitter brush, serviceberry (*Amelanchier utahensis*) and (*Amelanchier alnifolia*), buckbrush (*Ceanothus* spp.), chokecherry (*Prunus virginiana*), snowberry (*Symphoricarpos* spp.), pointleaf manzanita (*Arctostaphylos pungens*), and bearberry (*Arctostaphylos uva-ursi*); or deciduous shrub land principally dominated by bigtooth maple (*Acer grandidentatum*); or forest principally dominated by mountain mahogany; or conifer forest; or woodland with spruce-fir dominate/associate or co-dominate with mountain shrub; Primary associated shrub species include: Gambel's oak (*Quercus gambelii*), currant (*Ribes* spp.), ninebark (*Physocarpus* spp.), mountain lover (*Paxistima myrsinites*), blueberry (*Vaccinium* spp.), elderberry (*Sambucus* spp.), Oregon grape (*Mahonia repens*), and pointleaf manzanita. Primary associated tree species include: Rocky Mountain maple (*Acer glabrum*), aspen (*Populus tremuloides*), Douglas fir (*Pseudotsuga menziesii*), white fir (*Abies concolor*), limber pine (*Pinus flexilis*), alpine fir (*Abies lasiocarpa*), Engelmann spruce *(Picea engelmannii*), and ponderosa pine.
High Desert Scrub	**25.2%**	Shrublands at 670-3,150 m (2,200-10,300 ft) elevation principally dominated by greasewood (*Sarcobatus vermiculatus*), shadscale, graymolly (*Kochia vestita*), mat-atriplex (*Atriplex corrugata*), Castle Valley clover (*Atriplex cuneata*), winterfat, budsage (*Artemisia spinescens*), four-wing saltbush (*Atriplex canescens*), halogeton (*Halogeton glomeratus*), Mormon tea (*Ephedra* spp.), horsebrush (*Tetradymia canescens*), snakeweed and rabbitbrush; or low elevation perennial grassland co-dominate with shrubland. Principal grassland species include: galleta, indian ricegrass, three-awn grass (*Aristida glauca*) and sand dropseed. Primary associated forb species include:

		desert trumpet (*Eriogonum inflatum*). Primary associated shrub species include: sagebrush, and black brush (*Coleogyne ramosissima*); other associated species include seepweed (*Suaeda torreyana*).
Low Desert Scrub	**4.6%**	Shrubland at 670-1,830 m (2,200-6,000 ft) elevation principally dominated by black brush or creosote (*Larrea tridentata*), or white bursage (*Ambrosia dumosa*). Primary associated shrub species include: spiny hopsage (*Grayia spinosa*), Mormon tea , shadscale, snakeweed, turpentine bush (*Thamnosa montana*), dalea (*Dalea fremonti*), honey mesquite (*Prosopis glandulosa*), and brittlebush (*Encelia farinosa*); other associated species include joshua tree (*Yucca brevifolia*), datil yucca (*Yucca baccata*), prickly pear (*Opuntia engelmannii*), and other cacti.
Northern Oak	**2.8%**	Deciduous shrubland principally dominated by Gambel's oak at 1,125-2,750 m (3,700-9,000 ft) elevation. Primary associated shrub species include: bigtooth maple and sagebrush (*Artemesia spp.*). Primary associated tree species include aspen and mountain mahogany.
Desert Oak	**0.8%**	Deciduous shrubland principally dominated by wavyleaf oak (*Quercus undulata*) and shrub live oak (*Quercus turbinella*) at 820-2,100 m (2,700-7,000 ft) elevation. Primary associated tree species include: juniper, pinyon, and ponderosa pine.
GRASSLAND		
Grassland	**3.5%**	Perennial and annual Grasslands; or herbaceous dry meadows, including mostly forbs and grasses occurring at 640-2,740 m (2,200-9,000 ft) elevation. Principle perennial grass species include: bluebunch wheatgrass, sandburg bluegrass (*Poa secunda*), crested wheatgrass (*Agropyron cristatum*), basin wildrye (*Elymus cinereus*), galleta, needlegrass, sand dropseed, blue gramma, Thurbers needlegrass, western wheatgrass, squirreltail (*Sitanion hystrix*), timothy (*Phleum spp*.), poa (*Poa* spp.), spike (*Trisetum spicatum*), Indian ricegrass, and some sedges. Principle annual grass species is cheatgrass. Principal forb species include: yarrow (*Achillea millefolium*), dandelion (*Taraxacum officinale*), Richardson's geranium (*Geranium richardsonii*), penstemon (*Penstemon* spp.), mulesears (*Wyethia amplexicaulis*), golden aster (*Chrysopsis villosa*), arrowleaf balsamroot (*Balsamorhiza sagittata*), hawkbit (*Agoseris pumila*), larkspur (*Delphinium* spp.), and scarlet gilia (*Gilia pulchella*). Primary associated shrub species include: sagebrush, shadscale, greasewood, creosote, rabbit brush, cinquefoil, snowberry, and elderberry. Primary associated tree species is juniper.
Alpine	**0.4%**	Tundra vegetation at 1,980-3,500 m (6,500-11,500 ft) elevation, including sedges and avens. Principle species include: alpine avens (*Geum rossii, G. trifolium*), sedges, tufted hair grass, *Festuca ovina*, *Koeleria cristata*, spike trisetum (*Trisetum spicatum*), moss campion (*Silene acaulis*), cushion paronychia (*Paronychia pulvinata*), Ryberg's sandwort (*Arenaria obtusiloba*), dwarf clover (*Trifolium nanum*), Bellard's sedge *(Kobresia myosuroides*), American bistort (*Polygonum bistortoides*), *Eriophorum chamissonis*, and willow (*Salix spp*.). Primary associated tree species include Engelmann spruce and sub-alpine fir (*Abies lasiocarpa*).
FOREST		
Sub-Alpine Conifer	**2.3%**	Conifer forest principally dominated by combinations of Engelmann spruce, blue spruce (*Picea pungens*) and sub-alpine fir at 1,830-3,400 m (6,000-11,200 ft) elevation. Primary associated tree species include: lodgepole pine

		(*Pinus contorta*), white fir, Douglas fir, limber pine, and bristlecone pine (*Pinus aristata*).
Mixed Conifer	**1.2%**	Conifer forest principally dominated by combinations of white fir and Douglas fir at 1,500-3,050 m (5,000-10,000 ft) elevation. Primary associated tree species include: Engelmann spruce, blue spruce, and sub-alpine fir.
Ponderosa Pine	**1.2%**	Conifer forest or woodland at 1,600-2,700 m (5,200-8,700 ft) elevation with principally Ponderosa pine dominate/associate or co-dominate with mountain shrubs. Principle mountain shrub associated species include: manzanita (*Arctostaphylos*), bitter brush, Gambel's oak, snowberry, and curlleaf mountain mahogany (*Cercocarpus ledifolius*). Primary associated tree species include: juniper, pinyon, white fir and Douglas fir. Primary associated shrub species include: sagebrush, and rabbitbrush.
Lodgepole Pine	**1.0%**	Conifer forest principally dominated by lodgepole pine at 1,830-3,450 m (8,000-11,000 ft) elevation. Primary associated tree species include Engelmann spruce and sub-alpine fir.
Pinyon-Juniper	**19.4%**	Conifer forest at 820-3,400 m (2,700-11,000 ft) elevation principally dominated by Rocky Mountain juniper (*Juniperus scopulorum*), One-seed juniper (*Juniperus monosperma*), and Utah juniper (*Juniperus osteosperma*); or conifer forest principally dominated by two-needle pinyon (*Pinus edulis*) or singleleaf pinyon (*Pinus monophylla*); or conifer forest principally co-dominated by Pinyon and Juniper. Primary associated tree species include: mountain mahogany, ponderosa pine, white fir, and Douglas fir. Primary associated shrub species include: sagebrush, black brush, and Gambel's oak.
Aspen	**3.4%**	Deciduous forest principally dominated by Aspen at 1,400-3,200 m (5,600-10,500 ft) elevation. Primary associated conifer species include: Engelmann spruce, blue spruce, sub-alpine fir, white fir, Douglas fir, lodgepole pine, and ponderosa pine. Primary associated shrub species include snowberry and serviceberry.
ADDITIONAL HABITAT CATEGORIES		
Water - Lentic	**3.4%**	Open water: lakes and reservoirs.
Water - Lotic	**<0.1%**	Open water: streams and rivers.
Rock	**<3.1%**	Rock and southern Utah high elevation lava flows.
Agriculture	**4.2%**	Row crops, irrigated pasture and hay fields, orchards, and dry farm croplands <1,830 m (<6,000 ft) elevation.
Urban	**0.7%**	Commercial land and high-density residential areas <1,830 m (<6,000 ft) elevation.
Cliff	**<3.1%**	Vertical or near-vertical cliff facings.

*This table was taken (and slightly modified) from Parrish et al. 2002.

Although we desire to remain consistent with other planning efforts, we are also committed to utilizing the best data available. As the resolution and accuracy of GIS data improve through efforts such as the Southwestern Regional GAP project, which should be completed during 2005, habitat categories may be revised for future versions of the Utah CWCS. If habitat

categories are revised, cross-walk tables and other methods will be developed and employed to maintain consistency between the Utah CWCS and other management and conservation plans.

HABITAT PRIORITIZATION PROCESS

A team approach was used to prioritize habitats for the Utah CWCS. The team, which consisted of DWR employees, representatives from other government agencies, conservation organizations, an agricultural group, and a sportsmen group, eventually agreed upon five[1] criteria important for prioritizing habitats. The five criteria used were:

1. Abundance of the habitat in Utah, measured as the percentage of land cover according to Utah GAP Analysis;
2. Threats to the habitat in Utah, measured as both the magnitude of current threats and the amount of remaining habitat currently impacted;
3. Trends of the habitat in Utah, measured as abundance and condition of the habitat by observing current trends;
4. Importance of the habitat to Tier I, II, and III species in Utah, measured as the number of Tier I, II, and III CWCS species for which the habitat was identified as the first or second most important habitat; and
5. Importance of the habitat to Utah's overall vertebrate biodiversity. This criterion measures the number of vertebrate species that use the habitat, according to Utah GAP Analysis. However, Utah GAP Analysis did not create habitat models for fishes, so UDWR personnel assigned habitats used by fish species.

Each habitat type was given a score of one (least important) to five (most important) for each criterion.

I. Abundance in Utah
   - 1 – Abundant, more than 15% of total land cover
   - 2 – Common, between 10% and 14.9% of total land cover
   - 3 – Uncommon, between 4% and 9.9% of total land cover
   - 4 – Rare, between 1% and 3.9% of total land cover
   - 5 – Very rare, less than 1% of total land cover

II. Threats in Utah
   - 1 – Very low impact from current threats; less than 20% of remaining habitat currently impacted
   - 2 – Low impact from current threats; 20% to 39% of remaining habitat currently impacted
   - 3 – Moderate impact from current threats; 40% to 59% of remaining habitat currently impacted

[1] A sixth criterion, Utah's contribution to the overall amount of the habitat type available nation-wide, was considered important by the Utah CWCS team, but was abandoned due to the paucity of high-quality nation-wide GIS data with habitat categories similar to those in the Utah CWCS. As better-quality nation-wide habitat data become available (such as through the USDA Forest Service's Forest Inventory Analysis effort, for example) this criterion may be revisited, although we do not believe that the inclusion of this factor in our analysis will significantly change our list of key Utah habitats.

4 – High impact from current threats; 60% to 79% of remaining habitat currently impacted
5 – Extremely high impact from current threats; 80% to 100% of remaining habitat currently impacted

III. Trends (Abundance and Condition) in Utah
1 – Definite increasing trend
2 – Possible increasing trend
3 – Apparently stable or trend unknown
4 – Possible decreasing trend
5 – Definite decreasing trend

IV. Number of Tier I, II, and III Species for which the Habitat Type is Important (see Appendix 6.1, Utah CWCS Tier I, II, and III Species List)
1 –Habitat type is important to 3 species or less
2 –Habitat type is important to between 4 and 9 species
3 –Habitat type is important to between 10 and 19 species
4 –Habitat type is important to between 20 and 29 species
5 –Habitat type is important to 30 species or more

V. Vertebrate Biodiversity
1 –Habitat type is utilized by 70 species or less
2 – Habitat type is utilized by between 71 and 140 species
3 – Habitat type is utilized by between 141 and 210 species
4 – Habitat type is utilized by between 211 and 280 species
5 – Habitat type is utilized by 281 species or more

HABITAT PRIORITIZATION RESULTS

After scores were assigned for each criterion in each habitat type, the criteria scores for each habitat were summed to produce a composite score ranging from 5 to 25. Habitats with the highest total scores are considered to be most important for conservation. The criteria scores and total scores for each habitat are listed in Table 7.2 in descending order according to total score.

Although all habitat types are valuable for wildlife, only those with total scores of 16 or greater are considered "key" habitats. These key habitats include lowland riparian, wetland, mountain riparian, shrubsteppe, mountain shrub, lotic (flowing) water, wet meadow, grassland, lentic (standing) water, and aspen. Figures 7.1 to 7.10 depict the distribution of the 10 key habitats statewide.

Table 7.2. Utah CWCS Habitat Prioritization Criteria Scores and Total Scores

Habitat	Abundance (% Utah Land Cover)	Abundance Score	Threats Score	Trends Score	Number of Tier 1,2,3 Species	Tier 1,2,3 Species Score	Biodiversity (Number of Vertebrate Species)	Biodiversity Score	Total Score
Lowland Riparian*	0.2	**5**	**4.3**	**4.6**	35	**5**	295	**5**	23.8
Wetland*	0.2	**5**	**3.4**	**4.3**	36	**5**	176	**3**	20.7
Mountain Riparian*	0.2	**5**	**3.2**	**3.3**	21	**4**	350	**5**	20.5
Shrubsteppe*	13.4	**2**	**3.7**	**5.0**	20	**4**	263	**4**	18.7
Mountain Shrub*	1.3	**4**	**2.9**	**3.7**	14	**3**	285	**5**	18.5
Water - Lotic (flowing)*	0.1	**5**	**3.7**	**3.8**	28	**4**	98	**2**	18.5
Wet Meadow*	0.1	**5**	**3.8**	**4.3**	4	**2**	201	**3**	18.0
Grassland*	3.5	**4**	**2.7**	**3.0**	22	**4**	226	**4**	17.7
Water - Lentic (standing)*	3.4	**4**	**3.4**	**3.8**	16	**3**	165	**3**	17.1
Aspen*	3.4	**4**	**3.3**	**4.6**	4	**2**	174	**3**	16.9
Ponderosa Pine	1.2	**4**	**2.1**	**3.5**	5	**2**	223	**4**	15.6
Low Desert Scrub	4.6	**3**	**2.5**	**3.9**	29	**4**	90	**2**	15.4
Agriculture	4.2	**3**	**3.8**	**4.3**	6	**2**	88	**2**	15.0
High Desert Scrub	25.2	**1**	**3.3**	**3.5**	22	**4**	195	**3**	14.8
Desert Oak	0.8	**5**	**2.5**	**3.2**	1	**1**	145	**3**	14.7
Mixed Conifer	1.2	**4**	**2.0**	**3.4**	5	**2**	162	**3**	14.4
Lodgepole Pine	1	**4**	**2.3**	**3.4**	4	**2**	127	**2**	13.7
Playa	4.4	**3**	**2.7**	**3.9**	4	**2**	112	**2**	13.6
Northern Oak	2.8	**4**	**2.4**	**3.0**	3	**1**	145	**3**	13.4
Sub-Alpine Conifer	2.3	**4**	**1.8**	**2.6**	8	**2**	157	**3**	13.3
Pinyon-Juniper	19.4	**1**	**1.8**	**1.8**	22	**4**	228	**4**	12.6
Rock	3.1	**4**	**1.7**	**3.0**	9	**2**	1	**1**	11.7
Cliff	3.1	**4**	**1.5**	**3.0**	7	**2**	0	**1**	11.5
Alpine	0.4	**5**	**1.1**	**3.0**	3	**1**	55	**1**	11.1
Urban	0.7	**5**	**1.0**	**1.0**	0	**1**	54	**1**	9.0

* Denotes a Utah CWCS key habitat.

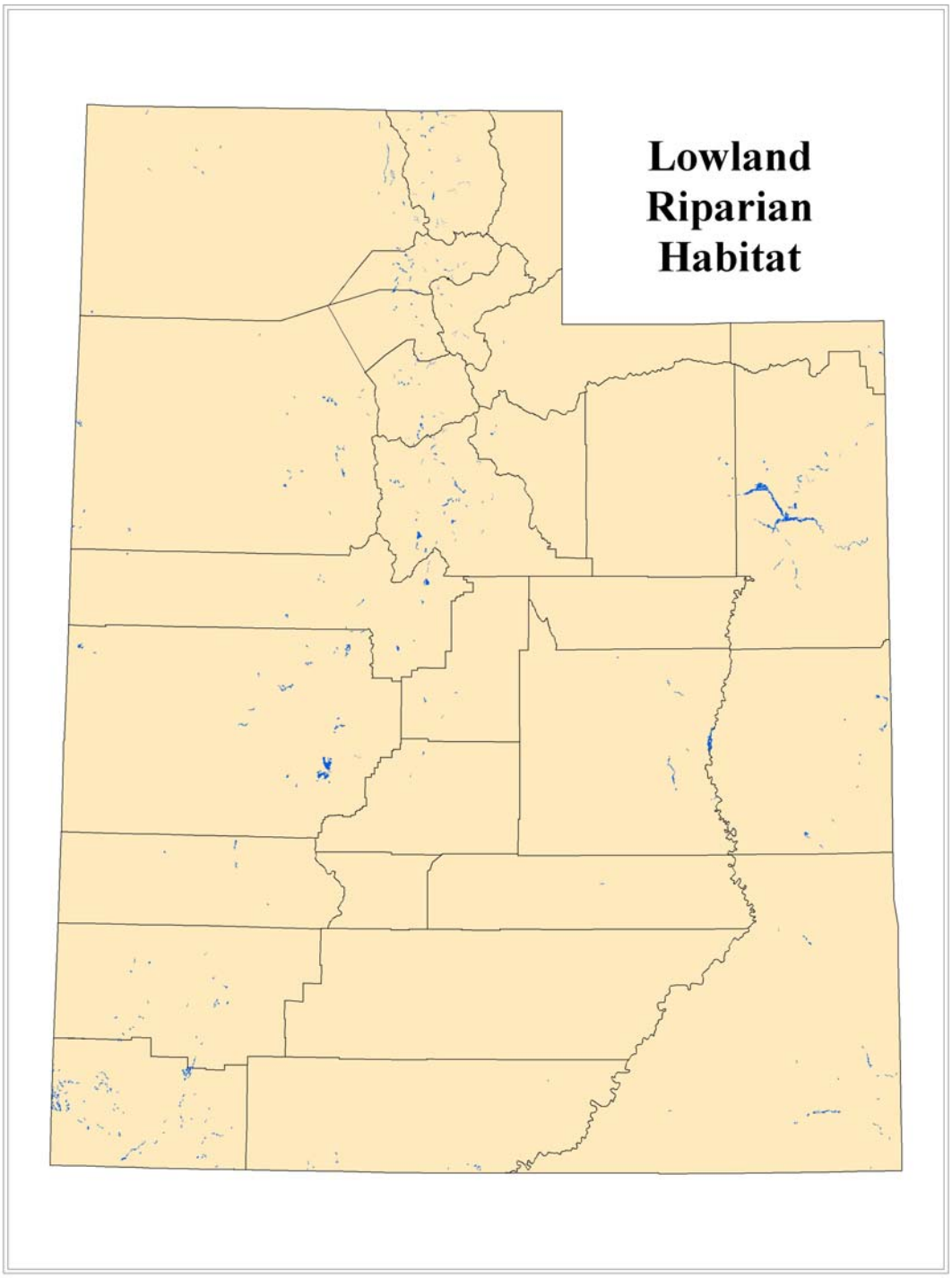

Figure 7-1. Map of Lowland Riparian Habitat in Utah

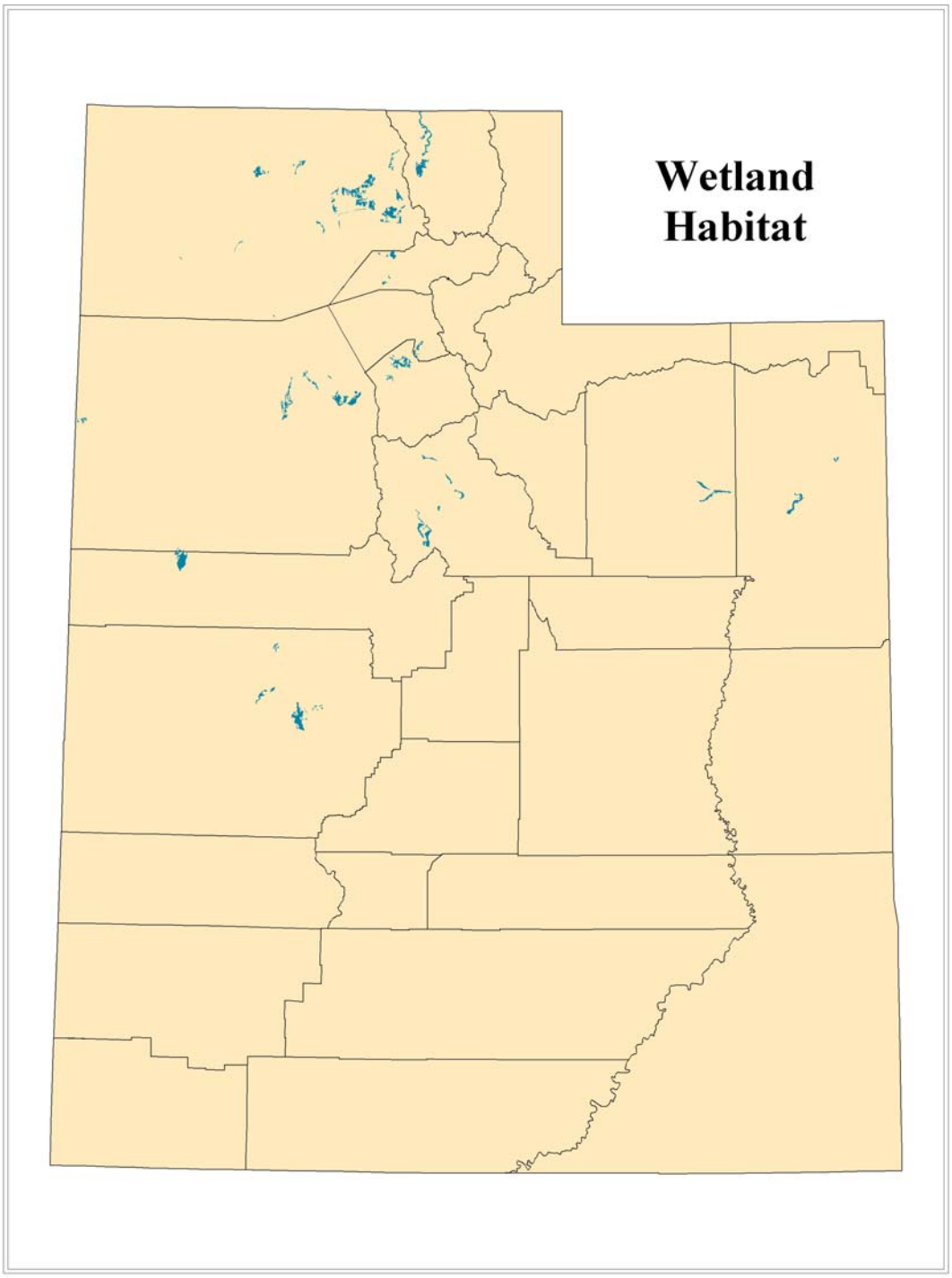

Figure 7-2. Map of Wetland Habitat in Utah

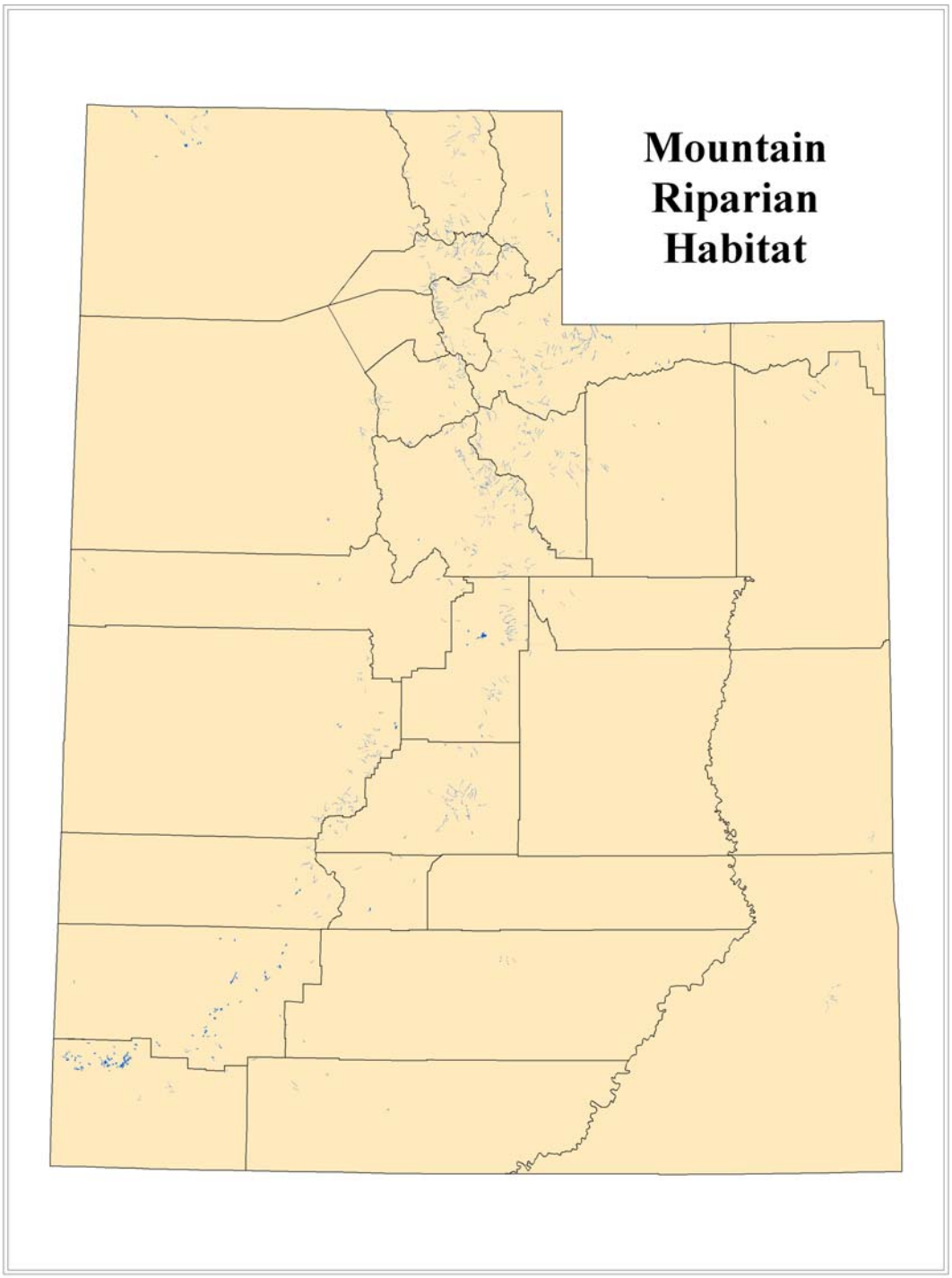

Figure 7-3. Map of Mountain Riparian Habitat in Utah

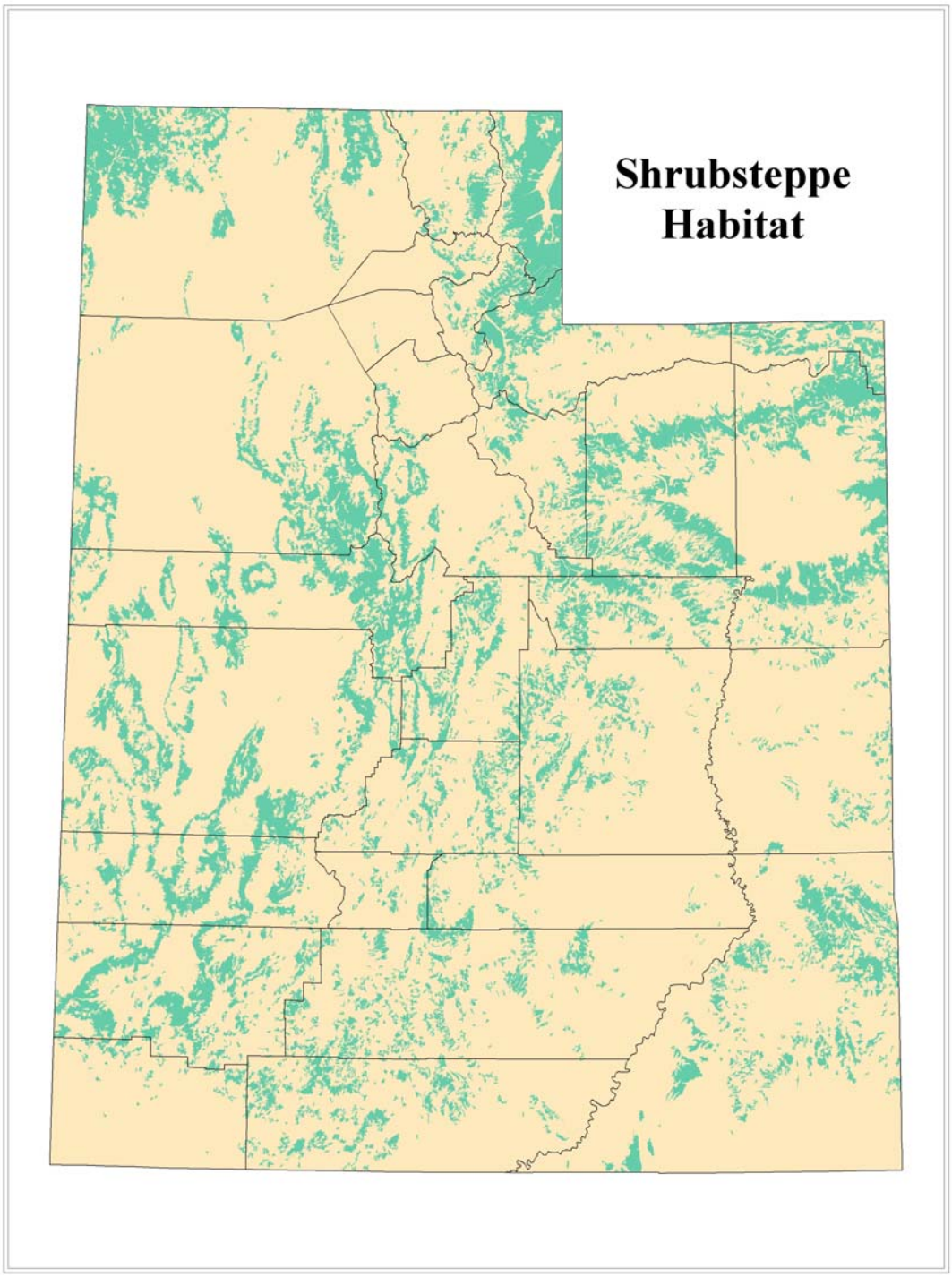

Figure 7-4. Map of Shrubsteppe Habitat in Utah

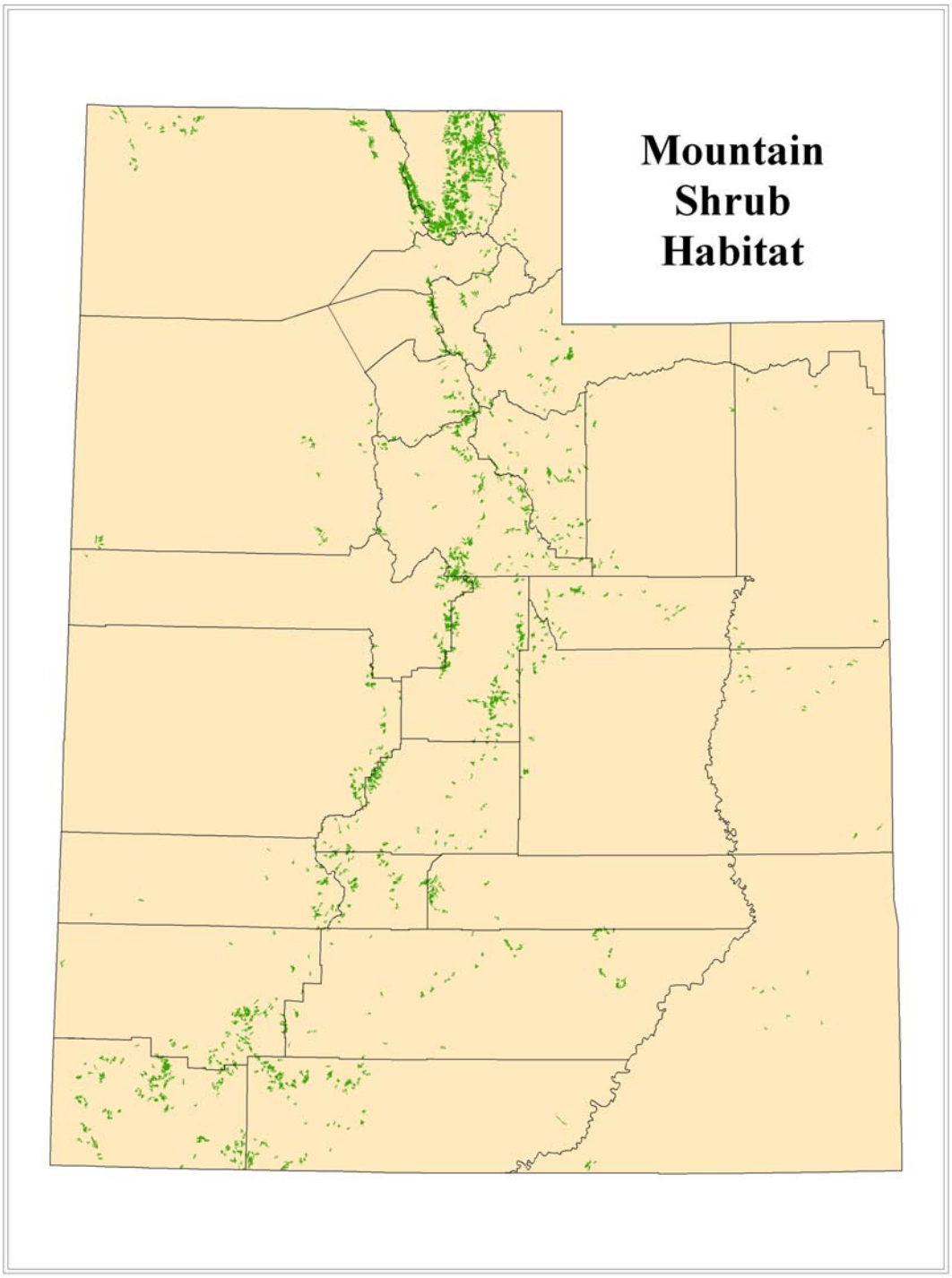

Figure 7-5. Map of Mountain Shrub Habitat in Utah

Figure 7-6. Map of Flowing Water (Lotic) Habitat in Utah

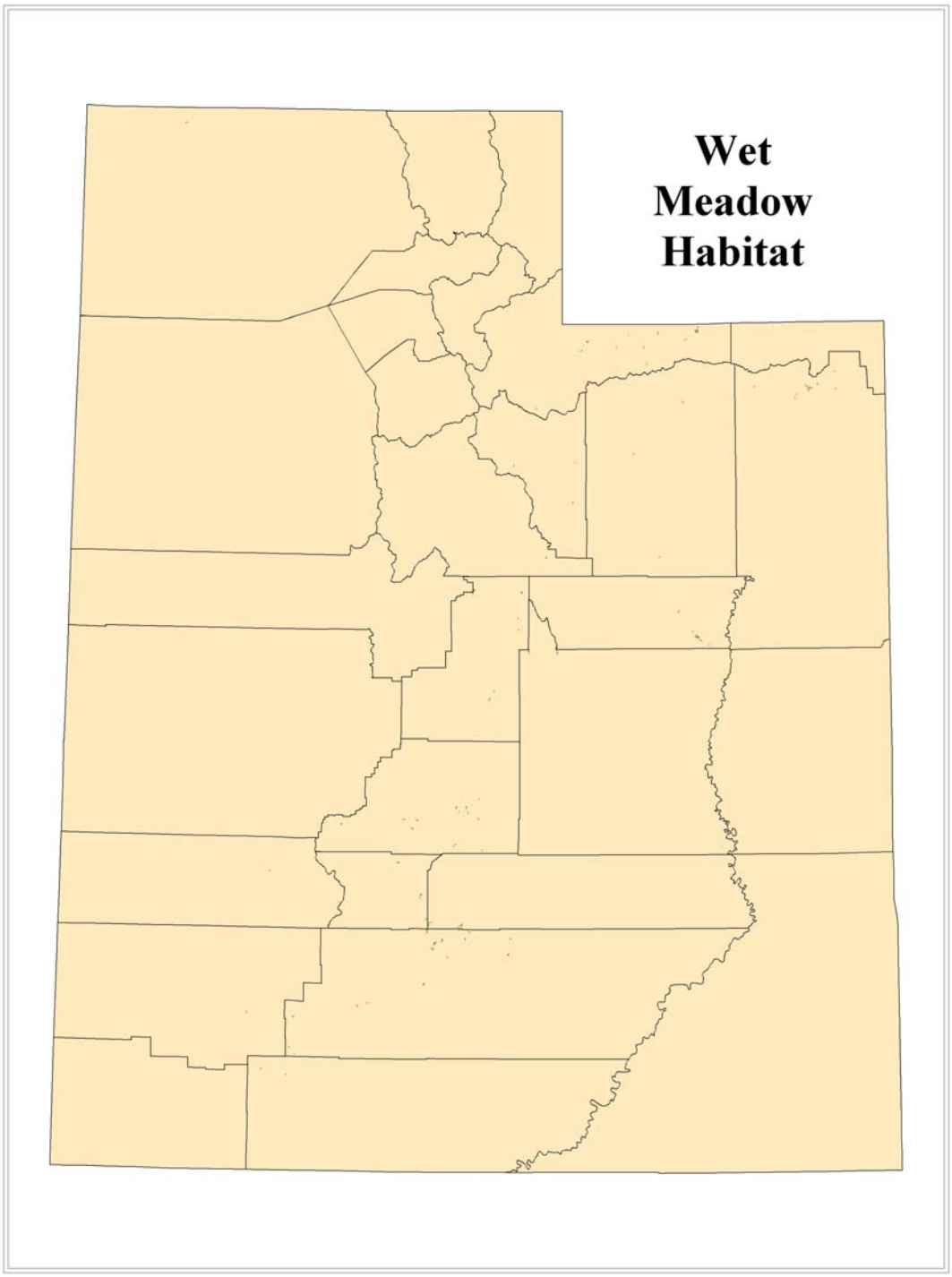

Figure 7-7. Map of Wet Meadow Habitat in Utah

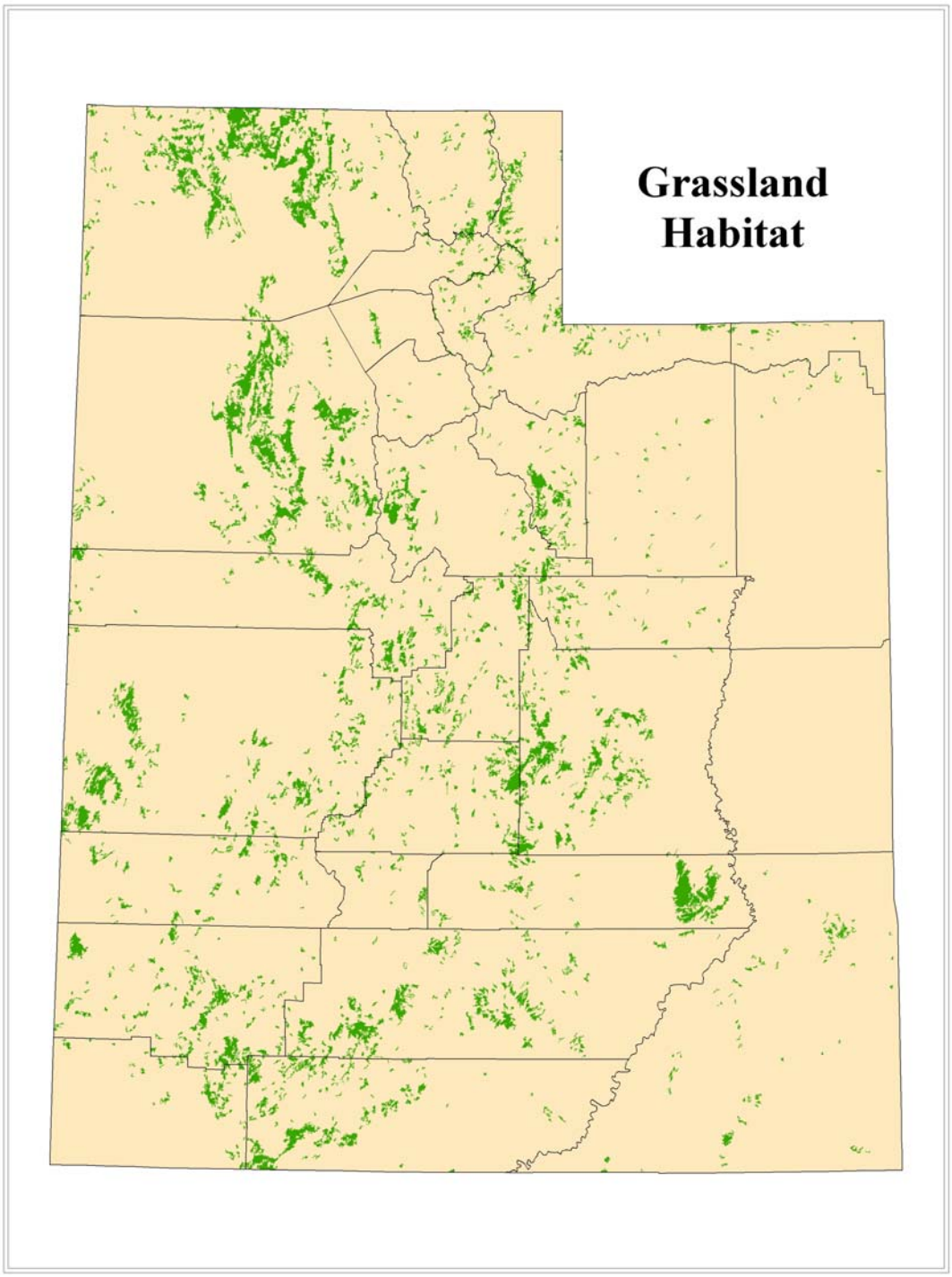

Figure 7-8. Map of Grassland Habitat in Utah

Figure 7-9. Map of Standing Water (Lentic) Habitat in Utah

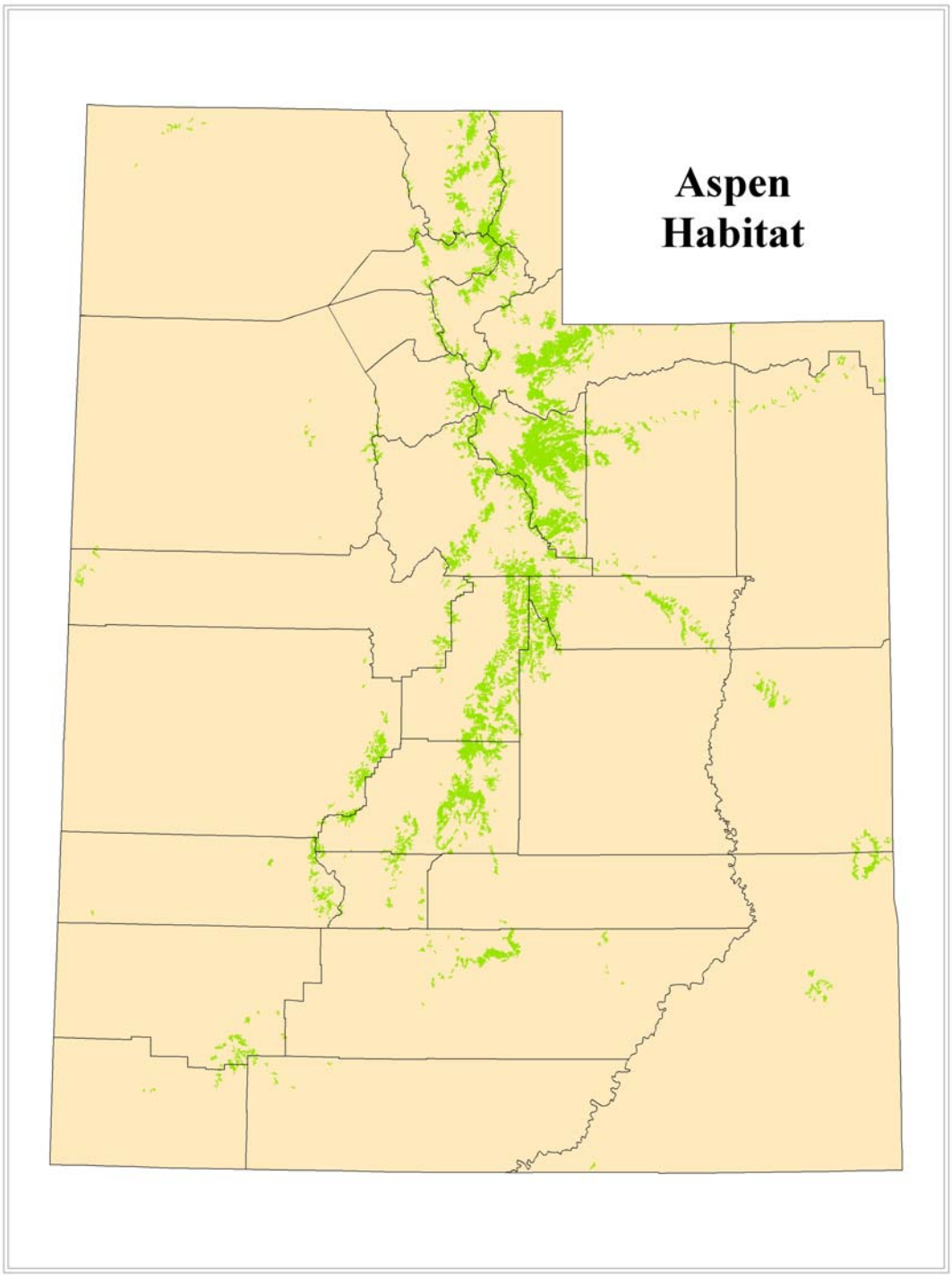

Figure 7-10. Map of Aspen Habitat in Utah

CONSERVATION FOCUS AREAS WITHIN KEY HABITATS

Because habitat conditions within key habitats are not uniform (i.e., the level of habitat degradation, the importance to species of conservation need, and the type and magnitude of threats vary from location to location), it is necessary to further refine key habitat areas so that habitat conservation and restoration activities can be as effective as possible. To this end, we have begun a process to identify "conservation focus areas" within each of the ten key habitats. A draft set of shrubsteppe habitat conservation focus areas has already been developed (Figure 7-11), and conservation focus areas for the remainder of the key habitats will be identified during the first two years of CWCS implementation. Bird Habitat Conservation Areas have also been delineated in Utah; the delineation process considered both key habitats and areas of importance to birds (Figure 7-12). Although our methodology is still being refined, the identification of conservation focus areas will likely be based on factors such as current habitat condition, species currently present, species potentially present, current threats, and land ownership.

SUMMARY

Habitat conservation and restoration activities within the conservation focus areas of the 10 key habitats are the most efficient ways to benefit Utah's species of greatest conservation need. Because of the poor conditions and current threats in these areas, there are ample opportunities for improvement. Moreover, because the key habitats and their conservation focus areas are important for multiple species of conservation need, well-conceived efforts to conserve/restore these habitats can benefit many imperiled species at once. As an added benefit, efforts to maintain key habitats will likely benefit other habitats (and their associated species) as well. For example,work to improve a mountain riparian corridor might reduce erosion in the surrounding mixed conifer forest. For these reasons, habitat conservation and restoration activities will be directed towards key habitat conservation focus areas and their associated species of conservation need.

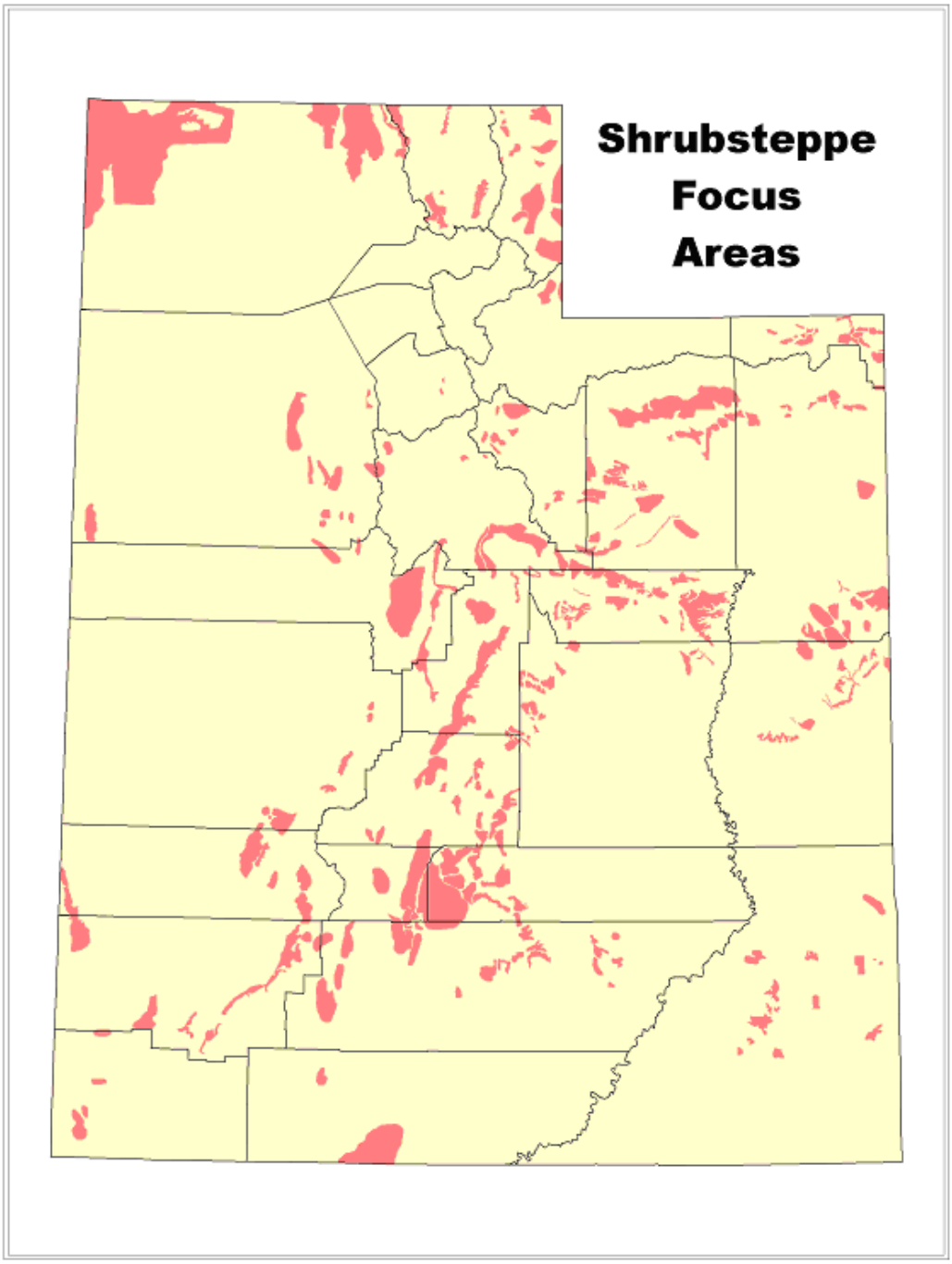

Figure 7-11. Shrubsteppe Habitat Conservation Focus Areas

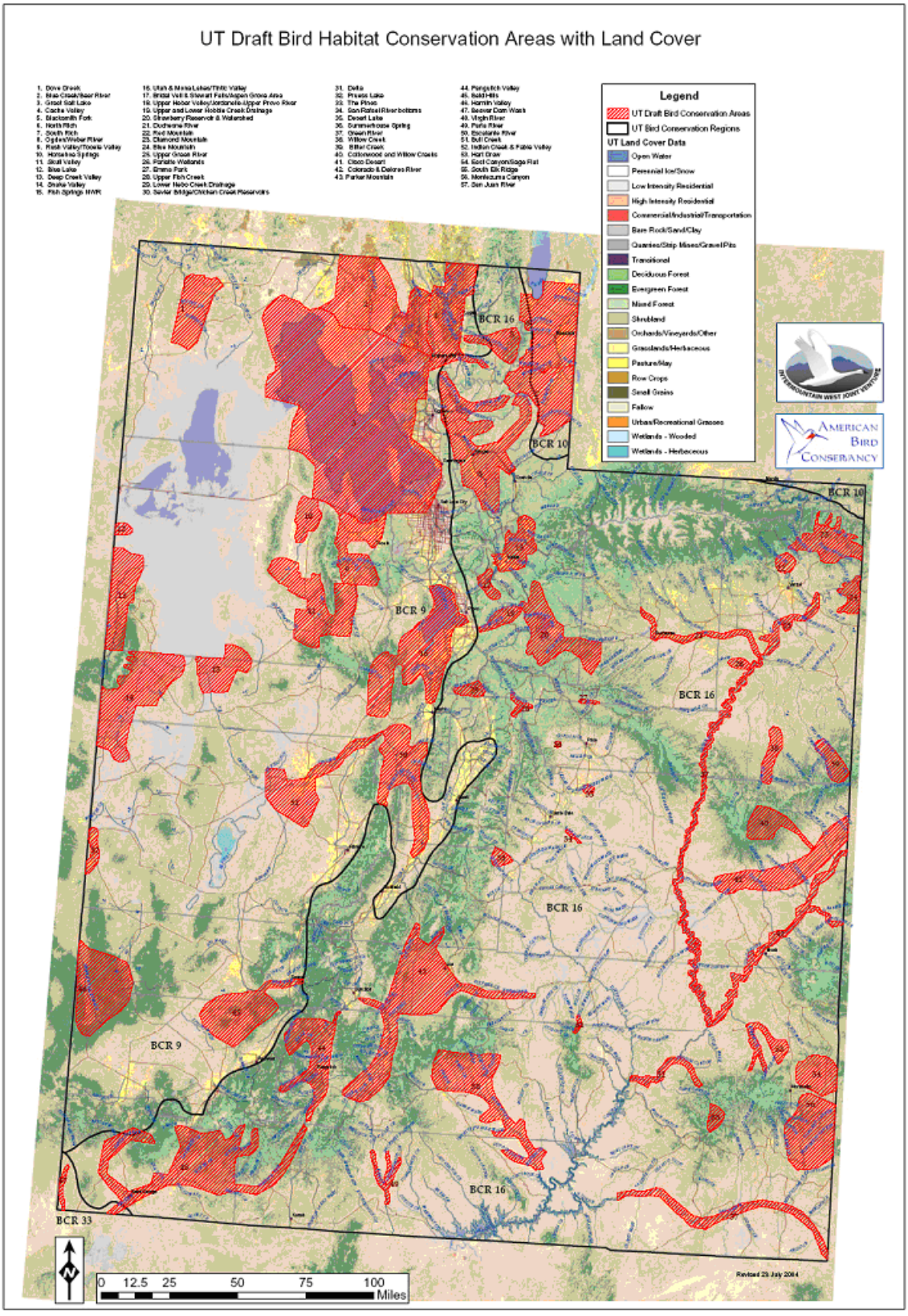

Figure 7-12. Map of Bird Habitat Conservation Areas in Utah

LITERATURE CITED

Parrish, J. R., F. P. Howe, and R. E. Norvell. 2002. Utah Partners in Flight Avian Conservation Strategy Version 2.0. Utah Division of Wildlife Resources Publication Number 02-27.

CHAPTER 8 . HABITAT PROBLEMS AND CONSERVATION ACTIONS

(Partial Elements 3 and 4)

IDENTIFYING HABITAT THREATS AND CONSERVATION ACTIONS

Habitat restoration and conservation activities in Utah will be targeted to the conservation focus areas within Utah's ten key habitats. Before conservation actions can be determined, it is necessary to identify the threats and other problems (such as lack of information) facing each of the key habitats. The UDWR habitat managers throughout the state have identified the threats and problems associated with the key habitats. The list of threats was reviewed and revised by representatives from UDWR, U.S. Fish and Wildlife Service, U.S.D.A. Forest Service, the Bureau of Land Management, several conservation organizations, agricultural groups, and sportsmen groups. This team also proposed conservation actions to manage each threat. Table 8.1 lists the general threats present in each of the key habitats, as well as the general conservation actions necessary to alleviate those threats. Table 8.1 also lists specific threats and prioritized conservation actions for each key habitat, so that the CWCS will be more useful for directing on-the-ground activities. For habitats where additional information is needed, habitat mapping, monitoring, and research are listed as appropriate conservation actions. This list of standard conservation actions linked to key habitats will guide the planning and implementation of habitat conservation and restoration programs and projects.

Table 8.1. Threats and Conservation Actions for Each Key Habitat

GENERAL THREATS

Brush Eradication: removal of woody vegetation without retaining sufficient plant diversity or adequate seral stage representation.
Channelization: straightening a stream channel, which leads to increased water velocities, increased erosion, a reduction in stream-side vegetation, & overall reduction of in-stream (aquatic) habitat quality
Dam Safety: potential loss of standing water because of problems with existing impoundments.
Development: The construction of buildings, subdivisions, towers, roads, and other structures associated with human habitation/use; includes agricultural, industrial, recreational, and residential impacts
Drought: a prolonged period of significantly below-average precipitation
Energy Development: the construction of well pads, powerlines, roads, and other structures associated with oil/natural gas extraction or coal mining
Environmental Contamination: the presence of harmful substances resulting from pollution or poisoning
Fire Cycle Alteration: fire supression and the resulting lack of disturbance; conversely, fire frequency and intensity can increase if certain invasive non-native species, such as cheatgrass, dominate an area
Improper Grazing Practices: includes overgrazing, grazing at the wrong time of year, grazing without periods of rest ("deferment"), etc.
Improper OHV Use: negative impacts from off-highway vehicles used off of designated roads and trails; includes illegal trail pioneering and proliferation
Invasive Animal Species: invasion by carp or certain aquatic mollusks, resulting in altered aquatic habitats
Invasive Plant Species: invasion by cheatgrass, tamarisk, noxious weeds, or other undesirable non-native plant species
Loss of Adjacent Uplands: the loss or degradation of upland habitats, which negatively impacts nearby wetland habitats by removing buffers, altering hydrologic patterns, and increasing disturbance to wildlife
Nutrient Enrichment: eutrophication of water habitats due to excess nitrogen, phosphorus, and/or other nutrients; includes Sediment Loading - increased inorganic soil materials suspended in the water
Water Development: altering natural water flows through diversion, storage, pumping, and/or conveyance activities

GENERAL CONSERVATION ACTIONS

Control and Monitor Contaminants: determine response of species to environmental contaminants, monitor and regulate contaminant levels in cooperation with state and federal agencies
Determine & Map Distribution: use surveys, remote sensing, and other methods to determine habitat locations; record results in GIS compatible format
Education and Outreach: develop public awareness and solicit public support; increase communication and cooperation of partnering agencies and NGOs
Enforce Existing OHV Regulations: improve enforcement of OHV regulations in key habitats
Habitat Monitoring & Research: determine response of habitats and species to habitat alterations through well designed monitoring and research programs (e.g., before-after-control-impact monitoring of shrubsteppe restoration treatments)
Improve Grazing Practices: change season of use as appropriate, implement rest-rotation, fence important habitats, etc.
Increase Coordination with Federal/State Agencies and Private Landowners
Increase/Secure In-stream Flow & Conservation Pools: maintain adequate water in streams (in-stream flow) and lakes/reservoirs (conservation pools) to support healthy riparian habitat and viable wildlife populations
Modify Agricultural Practices: reduce fertilizer use near select habitats
Permanent Conservation of Habitat: fee-title acquisitions or conservation easements
Properly Maintain Existing Dams: maintain dams to they are not breached
Restore and Conserve Habitat: restore or conserve habitat to replace habitat lost to development
Restore Degraded Habitats: restore stream sinuosity and channel profiles, control invasive non-native vegetation, plant desirable vegetation, reintroduce natural disturbance regimes to plant communities, etc.
Restore Natural Fire Cycle Where Appropriate: maintain or restore historic fire regimes
Support Efficient Energy Development Methods: examples include directional drilling and well clustering

Aspen

General Threats	Specific Threats	General Conservation Action	Specific Conservation Action	Priority
Development	Direct loss of habitat/habitat fragmentation	Education and Outreach	Educate the public and conservation partners about the consequences of losing aspen habitat	M
		Restore Degraded Habitats	Disturb conifers to favor aspen regeneration and replace the aspen habitat lost to development	H
		Increase Coordination with Federal/State Agencies and Private Landowners	Coordinate with agency planners so that management activities enhance, not degrade, important aspen habitats; coordinate habitat management activities with private landowners who own key wildlife habitats	H
Fire Cycle Alteration	Conifers replace aspen due to lack of disturbance	Restore Natural Fire Cycle Where Appropriate	Where appropriate, support prescribed burns or other methods to disturb conifers and favor aspen regeneration	H
Improper Grazing Practices	Over-grazing or grazing at the wrong time of year can greatly degrade the value of habitat for wildlife	Improve Grazing Practices	Change season of use as appropriate; introduce time-controlled grazing with appropriate rest-rotation schedules	M
		Habitat Monitoring and Research	Conduct grazing research and monitor results of grazing changes to determine response in habitat conditions	M

Grassland

General Threats	Specific Threats	General Conservation Action	Specific Conservation Action	Priority
Development	Direct loss of habitat/habitat fragmentation	Education and Outreach	Educate the public and conservation partners about the consequences of losing grassland habitat	M
		Permanent Conservation of Habitat	Acquire conservation easements or fee-title to key grassland areas	M
		Restore Degraded Habitats	Improve degraded grassland habitats to compensate for areas lost to development	H
		Increase Coordination with Federal/State Agencies and Private Landowners	Coordinate with agency planners so that management activities enhance, not degrade, important grassland habitats; coordinate habitat management activities with private landowners who own key wildlife habitats	H
Fire Cycle Alteration	Cheatgrass and other non-native species are favored by (and result in) increased fire frequency	Restore Natural Fire Cycle Where Appropriate	Use herbicides, mechanically remove, or otherwise control invasive non-native vegetation; plant desirable vegetation, including use of non-invasive, non-native perennial grasses when ecologically indicated to fight invasive annuals	H
		Restore Degraded Habitats	Use herbicides, mechanically remove, or otherwise control invasive non-native vegetation; plant desirable vegetation, including use of non-invasive, non-native perennial grasses when ecologically indicated to fight invasive annuals	H
Improper Grazing Practices	Over-grazing or grazing at the wrong time of year can greatly degrade the value of habitat for wildlife	Improve Grazing Practices	Change season of use as appropriate; introduce time-controlled grazing with appropriate rest-rotation schedules	M
		Habitat Monitoring and Research	Conduct grazing research and monitor results of grazing changes to determine response in habitat conditions	M
Invasive Plant Species	Cheatgrass and noxious weeds can out-compete desirable plant species	Restore Degraded Habitats	Use herbicides, mechanically remove, or otherwise control invasive non-native vegetation; plant desirable vegetation	H
		Education and Outreach	Educate the public about the negative impacts from cheatgrass	M
		Determine and Map Distribution	Map areas impacted by invasive non-native plant species	M
		Restore Natural Fire Cycle Where Appropriate	Restore natural fire cycle by restoring degraded habitats	H
		Habitat Monitoring and Research	Conduct research into new methods of invasive species control	M

Lowland Riparian

General Threats	Specific Threats	General Conservation Action	Specific Conservation Action	Priority
Channelization	Increased water velocity	Restore Degraded Habitats	Add meander to streams and plant desirable vegetation	H
	Lack of riparian vegetation			
	Increased sedimentation			
Development	Direct loss of habitat/habitat fragmentation	Education and Outreach	Educate the public and conservation partners about the consequences of losing lowland riparian habitat	M
		Permanent Conservation of Habitat	Acquire conservation easements or fee-title to key lowland riparian areas	M
		Restore Degraded Habitats	Improve degraded lowland riparian habitats to compensate for lowland riparian areas lost to development	H
		Determine and Map Distribution	Map the distribution of lowland riparian habitat	H
		Increase Coordination with Federal/State Agencies and Private Landowners	Coordinate with agency planners so that management activities enhance, not degrade, important lowland riparian habitats; coordinate habitat management activities with private landowners who own key wildlife habitats	H
Drought	Reduced amounts of water available for wildlife	Increase/Secure In-stream Flow	Secure adequate in-stream flow in key lowland riparian habitats	H
	Reduced plant productivity impacts herbivores			
Energy Development	Well pads, roads, and other infrastructure can result in direct loss of habitat and habitat fragmentation	Increase Coordination with Federal/State Agencies and Private Landowners	Work with land managers to include meaningful long-term habitat mitigation requirements in energy development projects	H
		Support Efficient Energy Development Methods	Support directional drilling, well clustering, and other efficient energy development methods	H
		Restore Degraded Habitats	Improve degraded lowland riparian habitats to compensate for areas lost to energy development	H
		Restore and Conserve Habitat	Support habitat restoration/conservation as mitigation for energy development	H
		Habitat Monitoring and Research	Conduct habitat restoration research and monitor habitat restoration projects to document their success or failure	H
		Determine and Map Distribution	Map the distribution of lowland riparian habitat	H
Fire Cycle Alteration	Increased fire frequency favors invasive plant species	Restore Natural Fire Cycle Where Appropriate	Use herbicides, mechanically remove, or otherwise control invasive non-native vegetation; plant desireable vegetation	H
		Restore Degraded Habitats	Use herbicides, mechanically remove, or otherwise control invasive non-native vegetation; plant desireable vegetation	H
Improper Grazing Practices	Over-grazing or grazing at the wrong time of year can greatly degrade the value of habitat for wildlife	Improve Grazing Practices	Change season of use as appropriate; introduce time-controlled grazing with appropriate rest-rotation schedules	M
		Habitat Monitoring and Research	Conduct grazing research and monitor results of grazing changes to determine response in habitat conditions	M
Improper OHV Use	Unchecked OHV use results in direct loss of habitat and habitat fragmentation	Enforce Existing OHV Regulations	Strictly enforce OHV regulations; revise OHV regulations as appropriate and necessary	M
	Soil compaction	Education and Outreach	Educate the public about the damage potential of OHVs	M
		Determine and Map Distribution	Map areas impacted by OHVs	M
		Habitat Monitoring and Research	Monitor habitat changes in areas impacted by OHVs	M
		Restore Degraded Habitats	Where appropriate, reclaim areas damaged by OHV use	H
		Increase Coordination with Federal/State Agencies and Private Landowners	Increase coordination for enforcement of OHV regulations	H

Invasive Plant Species	Tamarisk and other invasive species out-compete desirable plant species	Restore Degraded Habitats	Use herbicides, mechanically remove, or otherwise control invasive non-native vegetation; plant desirable vegetation, including use of non-invasive, non-native perennial grasses when ecologically indicated to fight invasive annuals	H
		Education and Outreach	Educate the public in ways to avoid the spread of invasive species	M
		Determine and Map Distribution	Map areas impacted by invasive plant species	M
		Habitat Monitoring and Research	Conduct research into new methods of invasive species control	M
Water Development	Reduced amounts of water available for riparian vegetation and wildlife	Increase/Secure In-stream Flow	Secure adequate in-stream flow in key lowland riparian habitats; implement water releases that more closely mimic natural hydrographs	H
	Lack of natural hydrological events, such as seasonal overbank flooding, impairs recruitment of some riparian vegetation	Education and Outreach	Educate the public and conservation partners about the importance of lowland riparian habitats	M

Mountain Riparian

General Threats	Specific Threats	General Conservation Action	Specific Conservation Action	Priority
Channelization	Increased water velocity	Restore Degraded Habitats	Add meander to streams and plant desirable vegetation	H
	Lack of riparian vegetation			
	Increased sedimentation			
Development	Direct loss of habitat/habitat fragmentation	Education and Outreach	Educate the public and conservation partners about the consequences of losing mountain riparian habitat	M
		Permanent Conservation of Habitat	Acquire conservation easements or fee-title to key mountain riparian areas	M
		Restore Degraded Habitats	Improve degraded mountain riparian habitats to compensate for mountain riparian areas lost to development	H
		Determine and Map Distribution	Map the distribution of mountain riparian habitat	H
		Increase Coordination with Federal/State Agencies and Private Landowners	Coordinate with agency planners so that management activities enhance, not degrade, important mountain riparian habitats; coordinate habitat management activities with private landowners who own key wildlife habitats	H
Energy Development	Well pads, roads, and other infrastructure can result in direct loss of habitat and habitat fragmentation	Increase Coordination with Federal/State Agencies and Private Landowners	Work with land managers to include meaningful long-term habitat mitigation requirements in energy development projects	H
		Support Efficient Energy Development Methods	Support directional drilling, well clustering, and other efficient energy development methods	H
		Restore Degraded Habitats	Improve degraded mountain riparian habitats to compensate for mountain riparian areas lost to energy development	H
		Restore and Conserve Habitat	Support habitat restoration/conservation as mitigation for energy development	H
		Habitat Monitoring and Research	Conduct habitat restoration research and monitor habitat restoration projects to document their success or failure	H
		Determine and Map Distribution	Map the distribution of mountain riparian habitat	H
Improper Grazing Practices	Over-grazing or grazing at the wrong time of year can greatly degrade the value of habitat for wildlife	Improve Grazing Practices	Change season of use as appropriate; introduce time-controlled grazing with appropriate rest-rotation schedules	M
		Habitat Monitoring and Research	Conduct habitat restoration research and monitor habitat restoration projects to document their success or failure	H
Improper OHV Use	Unchecked OHV use results in direct	Enforce Existing OHV Regulations	Strictly enforce OHV regulations; revise OHV regulations as appropriate and necessary	M

	loss of habitat and habitat fragmentation	Education and Outreach	Educate the public about the damage potential of OHVs	M
		Determine and Map Distribution	Map areas impacted by OHVs	M
		Habitat Monitoring and Research	Monitor habitat changes in areas impacted by OHVs	M
		Restore Degraded Habitats	Where appropriate, reclaim areas damaged by OHV use	H
		Increase Coordination with Federal/State Agencies and Private Landowners	Increase coordination for enforcement of OHV regulations	H
Invasive Plant Species	Invasive species out-compete desirable plant species	Restore Degraded Habitats	Use herbicides, mechanically remove, or otherwise control invasive non-native vegetation; plant desirable vegetation, including use of non-invasive, non-native perennial grasses when ecologically indicated to fight invasive annuals	H
		Education and Outreach	Educate the public in ways to avoid the spread of invasive species	M
		Determine and Map Distribution	Map areas impacted by invasive plant species	M
		Habitat Monitoring and Research	Conduct research into new methods of invasive species control	M
Water Development	Reduced amounts of water available for riparian vegetation and wildlife	Increase/Secure In-stream Flow	Secure adequate in-stream flow in key mountain riparian habitats; implement water releases that more closely mimic natural hydrographs	H
	Lack of natural hydrological events, such as seasonal overbank flooding, impairs recruitment of some riparian vegetation	Education and Outreach	Educate the public and conservation partners about the importance of mountain riparian habitats	M

Mountain Shrub

General Threats	Specific Threats	General Conservation Action	Specific Conservation Action	Priority
Brush Eradication	Poorly planned brush control activities, such as removal of woody vegetation without promoting sufficient plant diversity or adequate seral stage representation, can destroy important wildlife habitats	Increase Coordination with Federal/State Agencies and Private Landowners	Coordinate with "fuels management" officers and other fire planners so that brush management activities enhance, not degrade, important mountain shrub habitats; coordinate habitat management activities with private landowners who own key wildlife habitats	H
Energy Development	Well pads, roads, and other infrastructure can result in direct loss of habitat and habitat fragmentation	Increase Coordination with Federal/State Agencies and Private Landowners	Work with land managers to include meaningful long-term habitat mitigation requirements in energy development projects	H
		Support Efficient Energy Development Methods	Support directional drilling, well clustering, and other efficient energy development methods	H
		Restore Degraded Habitats	Improve degraded shrubsteppe habitats to compensate for areas lost to energy development	H
		Restore and Conserve Habitat	Support habitat restoration/conservation as mitigation for energy development	H
		Habitat Monitoring and Research	Conduct habitat restoration research and monitor habitat restoration projects to document their success or failure	H
Fire Cycle Alteration	Increase in plant decadence/pinyon-juniper habitat due to lack of disturbance	Restore Natural Fire Cycle Where Appropriate	Where appropriate, support prescribed burns or other methods to disturb decadent vegetation	H
	Increased fire frequency due to cheatgrass invasion	Restore Degraded Habitats	Improve degraded mountain shrub habitats to compensate for areas lost to development	H
Improper Grazing Practices	Over-grazing or grazing at the wrong time of year can greatly degrade the value of habitat for wildlife	Improve Grazing Practices	Change season of use as appropriate; introduce time-controlled grazing with appropriate rest-rotation schedules	M
		Habitat Monitoring and Research	Conduct habitat restoration research and monitor habitat restoration projects to document their success or failure	H

Invasive Plant Species	Cheatgrass and noxious weeds can out-compete desirable plant species	Restore Degraded Habitats	Use herbicides, mechanically remove, or otherwise control invasive non-native vegetation; plant desirable vegetation, including use of non-invasive, non-native perennial grasses when ecologically indicated to fight invasive annuals	H
		Education and Outreach	Educate the public about the negative impacts from cheatgrass	M
		Determine and Map Distribution	Map areas impacted by invasive non-native plant species	M
		Restore Natural Fire Cycle Where Appropriate	Implement controlled burns and restore degraded habitats	H
		Habitat Monitoring and Research	Conduct research into new methods of invasive species control	M

Shrubsteppe

General Threats	Specific Threats	General Conservation Action	Specific Conservation Action	Priority
Brush Eradication	Poorly planned brush control activities, such as removal of woody vegetation without promoting sufficient plant diversity or adequate seral stage representation, can destroy important wildlife habitats	Increase Coordination with Federal/State Agencies and Private Landowners	Coordinate with "fuels management" officers and other fire planners so that brush management activities enhance, not degrade, important shrubsteppe habitats; coordinate habitat management activities with private landowners who own key wildlife habitats	H
Development	Direct loss of habitat/habitat fragmentation	Education and Outreach	Educate the public and conservation partners about the consequences of losing shrubsteppe habitat	M
		Permanent Conservation of Habitat	Acquire conservation easements or fee-title to key shrubsteppe areas	M
		Restore Degraded Habitats	Improve degraded shrubsteppe habitats to compensate for areas lost to development	H
		Increase Coordination with Federal/State Agencies and Private Landowners	Coordinate with agency planners so that management activities enhance, not degrade, important shrubsteppe habitats; coordinate habitat management activities with private landowners who own key wildlife habitats	H
Drought	Reduced water results in dead/dying vegetation	Restore Degraded Habitats	Plant desirable vegetation when drought abates	H
Energy Development	Well pads, roads, and other infrastructure can result in direct loss of habitat and habitat fragmentation	Increase Coordination with Federal/State Agencies and Private Landowners	Work with land managers to include meaningful long-term habitat mitigation requirements in energy development projects	H
		Support Efficient Energy Development Methods	Support directional drilling, well clustering, and other efficient energy development methods	H
		Restore Degraded Habitats	Improve degraded shrubsteppe habitats to compensate for areas lost to energy development	H
		Restore and Conserve Habitat	Support habitat restoration/conservation as mitigation for energy development	H
		Habitat Monitoring and Research	Conduct habitat restoration research and monitor habitat restoration projects to document their success or failure	H
Fire Cycle Alteration	Increase in plant decadence/pinyon-juniper habitat due to lack of disturbance	Restore Natural Fire Cycle Where Appropriate	Where appropriate, support prescribed burns or other methods to disturb decadent vegetation; plant desirable vegetation	H
		Restore Degraded Habitats	Where appropriate, support prescribed burns or other methods to disturb decadent vegetation; plant desirable vegetation	H
Improper Grazing Practices	Over-grazing or grazing at the wrong	Improve Grazing Practices	Change season of use as appropriate; introduce time-controlled grazing with appropriate rest-rotation schedules	M

	time of year can greatly degrade the value of habitat for wildlife	Habitat Monitoring and Research	Conduct grazing research and monitor results of grazing changes to determine response in habitat conditions	M
Improper OHV Use	Unchecked OHV use results in direct loss of habitat and habitat fragmentation	Enforce Existing OHV Regulations	Strictly enforce OHV regulations; revise OHV regulations as appropriate and necessary	M
		Education and Outreach	Educate the public about the damage potential of OHVs	M
		Determine and Map Distribution	Map areas impacted by OHVs	M
		Habitat Monitoring and Research	Monitor habitat changes in areas impacted by OHVs	M
		Restore Degraded Habitats	Where appropriate, reclaim areas damaged by OHV use	H
		Increase Coordination with Federal/State Agencies and Private Landowners	Increase coordination for enforcement of OHV regulations	H
Invasive Plant Species	Cheatgrass and noxious weeds can out-compete desirable plant species	Restore Degraded Habitats	Use herbicides, mechanically remove, or otherwise control invasive non-native vegetation; plant desirable vegetation, including use of non-invasive, non-native perennial grasses when ecologically indicated to fight invasive annuals and restore the natural fire cycle	H
		Education and Outreach	Educate the public about the negative impacts from cheatgrass	M
		Determine and Map Distribution	Map areas impacted by invasive plant species	M
		Habitat Monitoring and Research	Conduct research into new methods of invasive species control	M

Water - Lentic (standing)

General Threats	Specific Threats	General Conservation Action	Specific Conservation Action	Priority
Dam Safety	Unsafe dams may be breached, resulting in a loss of lentic habitat	Properly Maintain Existing Dams	Support the efforts necessary to maintain dams that provide key lentic habitats	L
Drought	Reduced amounts of water available for wildlife	Permanent Conservation of Habitat	Secure conservation pools in key lentic habitats	M
Environmental Contamination	Contaminants, such as mercury, can accumulate in fish in polluted waters	Control and Monitor Contaminants	Support the pollution-reduction efforts of the EPA, DEQ, and other agencies	L
Invasive Animal Species	Habitat alteration by carp or invasive aquatic mollusks	Education and Outreach	Educate the public and conservation partners about ways to prevent the spread of invasive animal species	M
		Restore Degraded Habitats	Temporarily drain some small impoundments to reduce or eliminate invasive species	L
Invasive Plant Species	Invasive aquatic plant species, such as Eurasian watermilfoil, reduce the value of lentic habitats for some species	Education and Outreach	Educate the public in ways to avoid the spread of invasive species	M
		Determine and Map Distribution	Map areas impacted by invasive non-native plant species	M
		Habitat Monitoring and Research	Conduct research into new methods of invasive species control	M
		Restore Degraded Habitats	Temporarily drain some small impoundments to reduce or eliminate invasive species	L
Nutrient Enrichment/Sediment Loading	Eutrophication and excess silt levels reduce habitat value	Restore Degraded Habitats	Add meander to streams above key lentic habitats; disturb decadent vegetation and plant desirable vegetation above key lentic habitats	H
		Improve Grazing Practices	Implement rest-rotation grazing/fence cattle out of stream channels above key lentic habitats	M
		Modify Agricultural Practices	Reduce fertilizer use near eutrophic lentic habitats	M
Water Development	Reduced amounts of water available for wildlife	Permanent Conservation of Habitat	Secure adequate conservation pools in key lentic habitats	M
		Education and Outreach	Educate the public and conservation partners about the importance of lentic habitats	M

Water - Lotic (flowing)				
General Threats	**Specific Threats**	**General Conservation Action**	**Specific Conservation Action**	**Priority**
Channelization	Increased water velocity	Restore Degraded Habitats	Add meander to streams and plant desirable vegetation	H
	Lack of riparian vegetation			
	Increased sedimentation			
Development	Direct loss of habitat/habitat fragmentation	Education and Outreach	Educate the public and conservation partners about the consequences of losing lotic habitat	M
		Increase/Secure In-stream Flow	Secure in-stream flow in key lotic habitats	H
		Restore Degraded Habitats	Improve degraded lotic habitats to compensate for lotic areas lost to development	H
		Increase Coordination with Federal/State Agencies and Private Landowners	Coordinate with agency planners so that management activities enhance, not degrade, important lotic habitats; coordinate habitat management activities with private landowners who own key wildlife habitats	H
Drought	Reduced amounts of water available for wildlife	Increase/Secure In-stream Flow	Secure adequate in-stream flow in key lotic habitats	H
Energy Development	Well pads, roads, and pipelines can result in increased sedimentation	Increase Coordination with Federal/State Agencies and Private Landowners	Work with land managers to include meaningful long-term habitat mitigation requirements in energy development projects	H
		Support Efficient Energy Development Methods	Support directional drilling, well clustering, and other efficient energy development methods	H
		Restore Degraded Habitats	Improve degraded habitats to compensate for areas lost to energy development	H
		Restore and Conserve Habitat	Support habitat restoration/conservation as mitigation for energy development	H
		Habitat Monitoring and Research	Conduct habitat restoration research and monitor habitat restoration projects to document their success or failure	H
Environmental Contamination	Contaminants, such as mercury, can accumulate in fish in polluted waters	Control and Monitor Contaminants	Support the pollution-reduction efforts of the EPA, DEQ, and other agencies	L
Improper Grazing Practices	Over-grazing or grazing at the wrong time of year can greatly degrade the value of habitat for wildlife	Improve Grazing Practices	Change season of use as appropriate; introduce time-controlled grazing with appropriate rest-rotation schedules	M
		Habitat Monitoring and Research	Conduct grazing research and monitor results of grazing changes to determine response in habitat conditions	M
Improper OHV Use	Unchecked OHV use results in direct loss of habitat and habitat fragmentation	Enforce Existing OHV Regulations	Strictly enforce OHV regulations; revise OHV regulations as appropriate and necessary	M
		Education and Outreach	Educate the public about the damage potential of OHVs	M
		Determine and Map Distribution	Map areas impacted by OHVs	M
		Habitat Monitoring and Research	Monitor habitat changes in areas impacted by OHVs	M
		Restore Degraded Habitats	Where appropriate, reclaim areas damaged by OHV use	H
		Increase Coordination with Federal/State Agencies and Private Landowners	Increase coordination for enforcement of OHV regulations	H
Invasive Animal Species	Habitat alteration by carp or invasive aquatic mollusks	Education and Outreach	Educate the public and conservation partners about ways to prevent the spread of invasive animal species	M
Invasive Plant Species	Thick stands of tamarisk can reduce the amount of flowing water in a stream, narrow channels, exclude native species, and modify natural fluvial geomorphic processes	Restore Degraded Habitats	Use herbicides, mechanically remove, or otherwise control invasive non-native vegetation; plant desirable vegetation, including use of non-invasive, non-native perennial grasses when ecologically indicated to fight invasive annuals	H
		Education and Outreach	Educate the public in ways to avoid the spread of invasive species	M
		Determine and Map Distribution	Map areas impacted by invasive plant species	M

		Habitat Monitoring and Research	Conduct research into new methods of invasive species control	M
Nutrient Enrichment/Sediment Loading	Eutrophication and excess silt levels reduce habitat value and may prohibit successful breeding of some fish species	Restore Degraded Habitats	Add meander to streams; disturb decadent vegetation and plant desirable vegetation	H
		Improve Grazing Practices	Implement rest-rotation grazing; fence cattle out of stream channel	H
		Modify Agricultural Practices	Reduce fertilizer use near eutrophic lotic habitats	M
Water Development	Reduced amounts of water available for wildlife	Increase/Secure In-stream Flow	Secure adequate in-stream flow in key lotic habitats	H
		Education and Outreach	Educate the public and conservation partners about the importance of lotic habitats	M

Wet Meadow

General Threats	Specific Threats	General Conservation Action	Specific Conservation Action	Priority
Development	Direct loss of habitat/habitat fragmentation	Education and Outreach	Educate the public and conservation partners about the consequences of losing wet meadow habitat	M
	Draining	Permanent Conservation of Habitat	Acquire conservation easements or fee-title to key wet meadow areas	M
	Vegetation treatments that remove desirable plant species	Restore Degraded Habitats	Improve degraded wet meadow habitats to compensate for areas lost to development	H
		Increase Coordination with Federal/State Agencies and Private Landowners	Coordinate with agency planners so that management activities enhance, not degrade, important wet meadow habitats; coordinate habitat management activities with private landowners who own key wildlife habitats	H
Drought	Drought typically results in a reduction of wet meadow habitat	Increase/Secure In-stream Flow	Secure in-stream flow in streams functionally connected to key wet meadows	H
Improper Grazing Practices	Over-grazing or grazing at the wrong time of year can greatly degrade the value of habitat for wildlife	Improve Grazing Practices	Change season of use as appropriate; introduce time-controlled grazing with appropriate rest-rotation schedules	M
		Habitat Monitoring and Research	Conduct grazing research and monitor results of grazing changes to determine response in habitat conditions	M
Improper OHV Use	Unchecked OHV use results in direct loss of habitat and habitat fragmentation	Enforce Existing OHV Regulations	Strictly enforce OHV regulations; revise OHV regulations as appropriate and necessary	M
	Soil compaction	Education and Outreach	Educate the public about the damage potential of OHVs	M
		Determine and Map Distribution	Map areas impacted by OHVs	M
		Habitat Monitoring and Research	Monitor changes in areas impacted by OHVs	M
		Restore Degraded Habitats	Reclaim areas damaged by OHV use where appropriate	H
		Increase Coordination with Federal/State Agencies and Private Landowners	Increase coordination for enforcement of OHV regulations	H
Loss of Adjacent Uplands	The loss of adjacent upland habitats may impact wetland function and greatly reduce the value of wetland habitats for wildlife	Permanent Conservation of Habitat	Acquire conservation easements or fee-title to key wet meadows or important upland areas that are adjacent to key wet meadows	M
		Restore Degraded Habitats	Improve degraded upland habitats adjacent to key wet meadow habitats to compensate for uplands lost/degraded from development	M
Water Development	Reduced amounts of water available for wetland vegetation and wildlife	Increase/Secure In-stream Flow	Secure in-stream flow in streams functionally connected to key wet meadows	H
		Education and Outreach	Educate the public and conservation partners about the importance of wet meadow habitats	M

Wetland				
General Threats	**Specific Threats**	**General Conservation Action**	**Specific Conservation Action**	**Priority**
Development	Direct loss of habitat/habitat fragmentation	Education and Outreach	Educate the public and conservation partners about the consequences of losing wetland habitat	M
	Draining	Permanent Conservation of Habitat	Acquire conservation easements or fee-title to key wetland areas	M
	Vegetation treatments that remove desirable plant species	Restore Degraded Habitats	Improve degraded wetland habitats to compensate for wetlands lost to development	H
		Increase Coordination with Federal/State Agencies and Private Landowners	Coordinate with agency planners so that management activities enhance, not degrade, important wetland habitats; coordinate habitat management activities with private landowners who own key wildlife habitats	H
Drought	Reduced amounts of water available for wildlife	Increase/Secure In-stream Flow	Secure in-stream flow in streams functionally connected to key wetlands	H
	Reduced plant productivity impacts herbivores			
Energy Development	Well pads, roads, and pipelines can result in habitat loss, habitat fragmentation, and increased sedimentation	Increase Coordination with Federal/State Agencies and Private Landowners	Work with land managers to include meaningful long-term habitat mitigation requirements in energy development projects	H
		Support Efficient Energy Development Methods	Support directional drilling, well clustering, and other efficient energy development methods	H
		Restore Degraded Habitats	Improve degraded wetland habitats to compensate for wetland areas lost to energy development	H
		Restore and Conserve Habitat	Support habitat restoration/conservation as mitigation for energy development	H
		Habitat Monitoring and Research	Conduct habitat restoration research and monitor habitat restoration projects to document their success or failure	H
Environmental Contamination	Contaminants, such as selenium, accumulate in wetlands and can negatively impact wildlife populations	Control and Monitor Contaminants	Support the pollution-reduction efforts of the EPA, DEQ, and other agencies	L
Improper Grazing Practices	Over-grazing or grazing at the wrong time of year can greatly degrade the value of habitat for wildlife	Improve Grazing Practices	Change season of use as appropriate; introduce time-controlled grazing with appropriate rest-rotation schedules	M
		Habitat Monitoring and Research	Conduct grazing research and monitor results of grazing changes to determine response in habitat conditions	M
Invasive Plant Species	Tamarisk, purple loosestrife, and other invasive species out-compete desirable plant species	Restore Degraded Habitats	Use herbicides, mechanically remove, or otherwise control invasive non-native vegetation; plant desirable vegetation, including use of non-invasive, non-native perennial grasses when ecologically indicated to fight invasive annuals	H
		Education and Outreach	Educate the public in ways to avoid the spread of invasive species	M
		Determine and Map Distribution	Map areas impacted by invasive plant species	M
		Habitat Monitoring and Research	Conduct research into methods of invasive species control	M
Loss of Adjacent Uplands	The loss of adjacent upland habitats may impact wetland function and greatly reduce the value of wetland habitats for wildlife	Permanent Conservation of Habitat	Acquire conservation easements or fee-title to important upland areas that are adjacent to key wetlands	M
		Restore Degraded Habitats	Improve degraded upland habitats adjacent to key wetland habitats to compensate for uplands lost/degraded from development	H
Water Development	Reduced amounts of water available for wetland vegetation and wildlife	Increase/Secure In-stream Flow	Secure in-stream flow in streams functionally connected to key wetlands	H
		Education and Outreach	Educate the public and conservation partners about the importance of wetland habitats	M

RELATIVE PRIORITY OF CONSERVATION ACTIONS

Conservation actions that 1) Increase coordination with government agencies and private landowners, and 2) Restore degraded habitats within identified conservation focus areas and therefore benefit species of conservation need, will be given the highest priority. As recent habitat restoration work on Utah shrubsteppe habitats has shown (see discussion of UPCD partners and work plan in Chapter 10), there is a strong commitment on the part UDWR and its partners to work cooperatively to restore degraded habitats. Because of this strong desire, the demonstrated need for habitat restoration, and the cooperative nature of the restoration activities, large-scale habitat restoration efforts in Utah have an excellent chance for success.

PRIORITY HABITAT RESEARCH AND SURVEY NEEDS

The quality of Utah's habitat GIS data is currently being improved through the Southwest Regional GAP project, which should be completed in 2005. Future Utah habitat mapping needs will depend upon the accuracy of Southwest Regional GAP final habitat data. However, because of the resolution of GAP data (30 square meters), it is anticipated that some small habitats, such as narrow riparian areas, may be underrepresented. Accordingly, the mapping of small mountain riparian and lowland riparian habitats throughout Utah will be a high survey priority. In addition, as discussed in chapter 7, the identification of conservation focus areas in each of the 10 key habitats is a priority task that will be completed within the first two years of CWCS implementation.

The primary research goal is to determine the impacts of CWCS habitat restoration activities on species and habitats. Research is necessary to determine which habitat restoration activities produce the best habitat conditions and result in enhanced species populations. With proper research, restoration actions that are not effective can be modified or abandoned, effective techniques can be improved, and new techniques can be developed and tested. The UDWR is currently working cooperatively with Utah State University to conduct research on the effects of shrubsteppe habitat restoration activities in northern Utah. Research will be conducted on other key habitats as conservation and restoration activities in those habitats are implemented.

CHAPTER 9 . ADAPTIVE MANAGEMENT AND MONITORING.
(Element 5)

In this chapter, we present a framework for adapting our conservation actions in response to new information and changing conditions. Adaptive Management is a tool that promotes continual improvement of species conservation through learning from both successful and unsuccessful management actions. To be successful, adaptive management must contain a monitoring component that assesses species and habitat responses to management actions while simultaneously measuring environmental conditions that may confound monitoring results. It also requires a mechanism that enhances learning and facilitates change in response to what is learned.

THE CRITICAL ELEMENTS – PLAN, IMPLEMENT, MONITOR

Simply defined, adaptive management is the adjustment or modification of management to achieve a desired conservation objective. In practice, true adaptive management is a complex process that should include both sound experimental design components and a systematic process that includes a feedback loop linking monitoring to management (Figure 9-1; Moir and Block 2001, Aldridge et al. 2004). Adaptive management requires flexibility, but the adaptive management approach should be well structured and predetermined. The CWCS will be used as a guideline as ongoing conservation actions are implemented and new actions are developed so that study design, evaluation, and adaptive management are more thoroughly integrated into UDWR projects.

Key steps in the adaptive management process are 1) determine the desired conservation objective, 2) formulate a predictive model (or suite of models) that represents potential changes in the system resulting from a management action (or suite of actions), 3) based on predictions (i.e., hypotheses) from the model, implement the apparently appropriate management action(s) to meet the objective, and 4) monitor the results to determine if the management action(s) resulted in the desired outcome. Based on results, the models are revised (if necessary), and the process is repeated. These steps and methods are discussed by Walters 1986, Johnson et al. 1997, Moir and Block 2001, Williams et al. 2001.

Setting objectives and developing predictive models stimulate organization and formalize rigorous thinking about the management issue and potential solutions. In effect, the model estimates benefits for each alternative action, based on the associated risks, so that the chosen action should provide the maximum benefit. Monitoring provides the critical link between implementing conservation actions and revising management objectives (Figure 9-1). The absence of correctly conducted monitoring leads to the failure of adaptive management, as the critical feedback loops needed to understand the costs, benefits, and effectiveness of management are severed (Moir and Block 2001).

When well-designed, adaptive management is greatly enhanced and can provide an alternative to the formal experiments normally conducted in scientific investigations (Block et al. 2001). Adaptive management has the strongest inference (widest applicability) when experimental design components are incorporated into the monitoring process; for example random selection of study areas (or animals), random assignment of treatments (including controls) over space and time, and replication should all be considered in adaptive management

monitoring designs. However, in some situations, rigorous experimental design procedures can be relaxed without invalidating monitoring results.

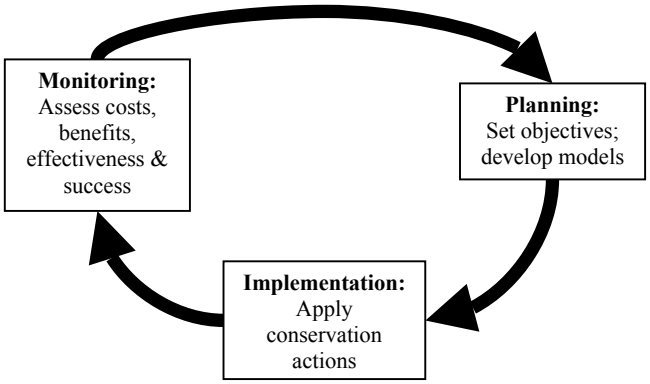

Figure 9-1. Adaptive Management Cycle

SETTING CONSERVATION OBJECTIVES

Setting measurable objectives is the first critical step in Adaptive Management. Objectives need to be set first at the statewide level; after that is done, focus area objectives that complement statewide objectives should be developed. Focus areas are discussed in chapters 7, 8, and 10. Setting statewide objectives requires significant thought before any action is taken; much of this "up-front thought process" has been accomplished through development of the CWCS and other planning efforts. For example, the UTACS (Parrish et al. 2002) sets measurable habitat and population objectives for several avian species and most Recovery Plans set measurable population objectives. However, objectives remain to be set for the majority of Utah's CWCS species.

For the species and habitat types that lack objectives, we propose using a process similar to The Nature Conservancy's planning process (TNC 2000, Parrish et al. 2003). In this process, key ecological factors and measurable indicators for those factors are defined. Categories (usually Poor, Fair, Good, Very Good) are established for the indicators. Then the current and desired conditions along with dates associated with these conditions are determined.

For example, a Key Ecological Factor for sage-grouse may be productivity (number of young per nest) with nest success being an indicator of that factor. Nest success of below 35% might be considered Poor, 35-49% would be Fair, 50-69% would be Good and 70% or above would be Very Good. The current condition (as of 1 January 2005) may be Fair with the target condition of Good set for 1 January 2015. There could be several Key Ecological Factors and each may have one or more measurable indicators.

UDWR is forming a panel of experts to gather background information, define ecological factors, measurable indicators, and condition categories and then set statewide objectives with timelines for those species and habitats identified in the CWCS. Then UDWR and its partners can determine how best to meet those objectives through local projects.

FORMULATING MODELS

We will consider 3 adaptive management model approaches for each management issue (Figure 9-2). Funding availability will largely determine which approach is actually implemented in each situation. In the Trial and Error approach (Figure 9-2.A.), a single action is modeled, implemented, and monitored; if the action is successful, the status quo is maintained. If the action is not successful, a new model is developed and an alternative action is implemented and monitored. This is the least desirable approach, but may be required when time and funding are limited. In the Step-wise approach (Figure 9-2.B.) a preferred conservation action is implemented but one or more alternatives are available if the preferred action fails. If such failure occurs, "plan B" goes into effect; the success of this action is then monitored and assessed. This approach requires less "up-front" funding than our third approach but may not identify the most effective conservation action. In the Horse Race approach (Figure 9-2.C.), two or more alternative actions are proposed *a priori* and are implemented at the same time. A distinct advantage of this approach is that monitoring results can be directly compared through either a traditional statistical approach (e.g., analysis of variance) or with an information-theoretic approach to model comparisons (Burnham and Anderson 2001). Horse Race adaptive management is the most desirable because of its strong design and because it allows comparison of several actions across space and time. Its disadvantage is the up-front cost; however, this may be offset in the long run by the efficiency of testing several actions at once.

Currently we do not have all of the information required to build data-driven adaptive management models for all species and habitats across the state. As part of the CWCS process, UDWR has determined what information we have, what information we lack and what conservation actions and monitoring techniques are or could be in place. Through this process we have also identified gaps in information that need to be filled in order to create reliable adaptive management models. This lack of information can be temporarily overcome by developing a qualitative (or semi-quantitative) adaptive management model based on the information that we do have. And, as information gaps are filled, we will refine our model to be more quantitative and specific (Holling 1978).

IMPLEMENTING ACTIONS

Monitoring should occur for both new and ongoing management. Research information, previously collected monitoring data, population or ecological models, even anecdotal information may indicate that changes in management appear warranted. If new management is proposed, it should be thoroughly described so that it can be implemented and monitored effectively.

Management actions should be developed based on our knowledge of ecology and biology as well as current ecological conditions. This also requires a practical knowledge of what techniques are most likely to work under a variety of conditions. Communication between those with the theoretical knowledge and those with the practical knowledge is essential.

Implementation of management actions requires a knowledge of what options (tools) are available and how much each costs; successful implementation also involves communication with the public and specific user groups. Implementation, particularly of new management actions, may require overcoming resistance to change; small scale tests and a commitment to monitor effects of new techniques may provide sufficient momentum to overcome resistance.

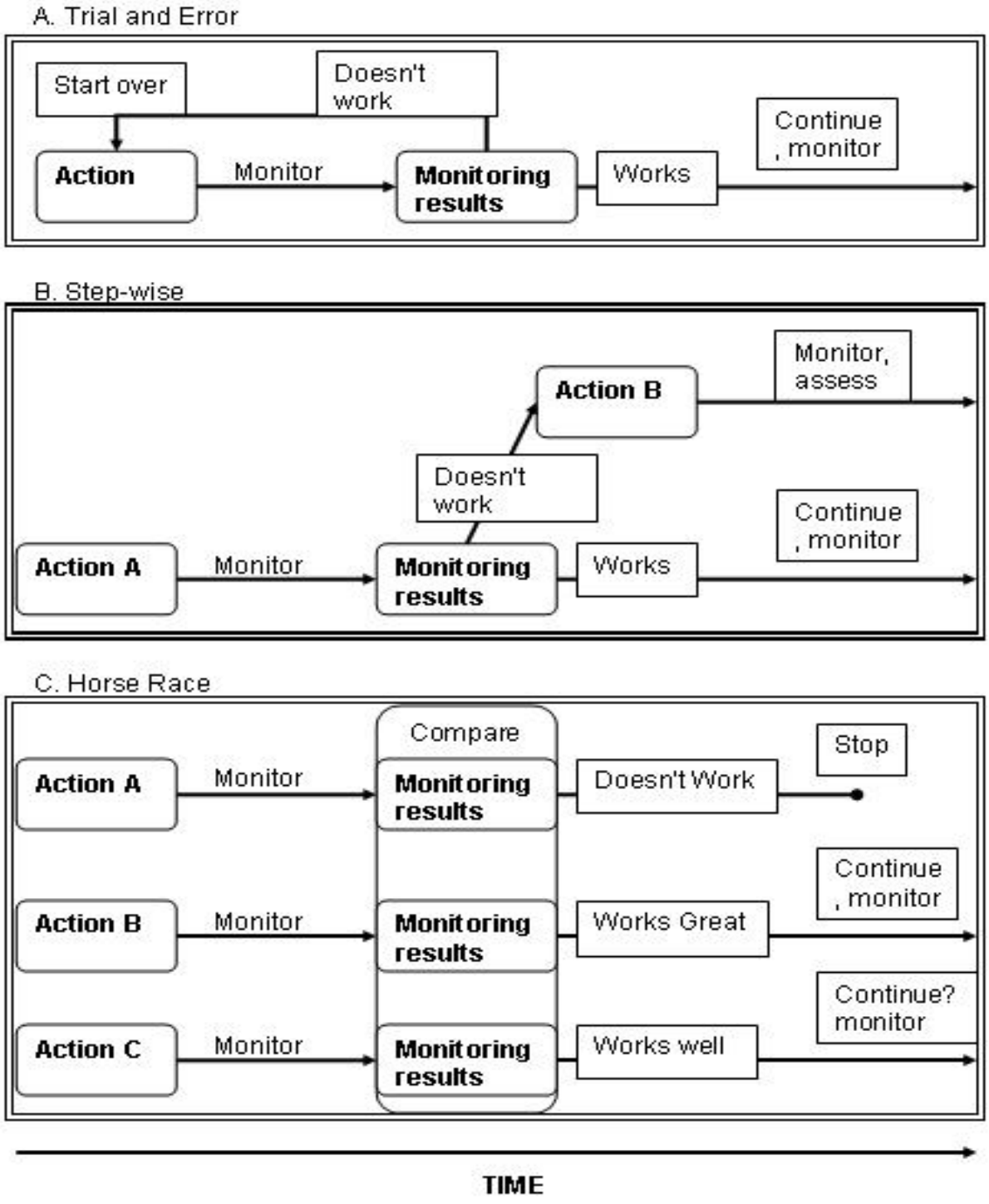

Figure 9-2. Adaptive Management Model Approaches

New management actions should be tested in a small inconspicuous area before applying them to the entire treatment area.

MONITORING

The Utah Division of Wildlife Resources (UDWR) currently monitors animal species to determine population status, distribution, and productivity. UDWR also monitors wildlife habitats to determine the health of plant communities that are important to wildlife. These monitoring data are then used to assess the effectiveness of management actions. Monitoring is primarily conducted at two levels: 1) the individual species level and 2) the habitat type or community level. Monitoring activities are included in management documents such as Recovery Plans, Conservation Agreements, Habitat Conservation Plans, and other species management plans involving interagency partnerships. (A comprehensive list of active management plans for CWCS species can be found in Chapter 4.)

Monitoring is critical to understanding and quantifying the impacts of management actions. While what to monitor will be dictated during the adaptive management process, in most cases we will want to monitor one or all of the following: 1) target species responses, 2) habitat responses, 3) prey responses, 4) non-target species responses, and 5) public/stakeholder understanding, acceptance and support. Target and non-target species responses may include presence/absence, population density, productivity (number of offspring), breeding success, offspring and adult survival, use of treated areas, etc. Prey response may be a change in prey density, prey availability and prey utilization by target species or a change in prey utilization of habitat. Habitat responses are monitored using vegetation monitoring techniques which yield information directly applicable to the habitat of the species of interest.

For comparatively well-studied species, monitoring protocols have been described, often in great detail, in recovery plans, conservation plans, published literature and gray literature; UDWR will use these if available. If no established protocol exists, UDWR will adapt protocols from similar species or develop its own protocols based on what is known about the species. In developing protocols, we will follow Oakley et al. (2003). If little is known about a species (e.g., the Tier III species) an inventory must first be conducted to determine whether or not the species can be found in anticipated habitats (e.g., presence/absence surveys). Repeated surveys over time are usually necessary to confirm absence. Once presence is determined, the breeding status and density or relative abundance of the species will be evaluated using species-specific monitoring protocols (either standardized or developed by UDWR). When presence data are assembled, complete distributions of the species, along with population conditions can be mapped and used to direct future efforts. When combined with habitat data, this information can be used to develop predictive habitat models and maps to help focus future efforts.

Setting Monitoring Objectives

Monitoring objectives should logically follow the management objectives. If, for example, the management objective was to increase sage-grouse productivity by increasing nesting habitat, then monitoring objectives should include measuring nesting habitat and the number of sage-grouse young produced. As with setting overall adaptive management objectives, monitoring objectives should be set first at the statewide level and then at the project level.

Monitoring objectives should be measurable; there should be a measure of the species or habitat (indicator) of interest as well as a measure of the amount of acceptable error (variance). For example, an objective to monitor a project designed to increase sage-grouse populations might be to measure annual sage-grouse density with sample size and technique sufficient to detect 25% change over 10 years. It is not possible to effectively design a monitoring project, determine the appropriate factors and indicators to measure, or determine what data gathering techniques to use until measurable monitoring objectives are developed.

Species monitoring

Species monitoring activities conducted by UDWR may be subdivided into two general categories: population monitoring and assessment monitoring.

Population monitoring – Population monitoring is a general technique designed to detect prevailing population trends by monitoring individual species or species groups over time (Thompson et al. 1998). This type of monitoring allows UDWR to determine if populations are increasing, decreasing or stable and take appropriate management actions in order to preclude the necessity of federal listing. In most cases, habitat data are also collected and correlated with population information. Examples of population monitoring projects include the statewide survey of landbirds in riparian habitats (Howe 1996), shorebird and waterbird surveys on the Great Salt Lake (Paul and Manning 2002), population monitoring of Virgin River fishes (UDWR 2002a), Colorado pikeminnow population monitoring (Bestgen et al. 2004) statewide waterfowl surveys (UDWR 2002b), and river otter monitoring (Maxfield et al. 2005), to name a few. At times, large scale changes in the environment can be correlated with this type of monitoring data, though population monitoring is not specifically designed to provide information on cause and effect. Examples of monitoring techniques used for CWCS species are listed in Appendix E.

Assessment monitoring – Assessment monitoring (also termed project monitoring or objective-based monitoring) is the monitoring of species responses to management changes at the project (or several project) level. Elzinga et al. (2001) defines it as collection and analysis of repeated observations to evaluate changes in condition and progress toward meeting a management objective. This type of monitoring allows UDWR to assess impacts of management actions and modify these actions to maximize the desired effect on species and populations. For example, UDWR is evaluating responses of endangered native fish species to removal of nonnative smallmouth bass populations (Christopherson and Brunson 2005). UDWR is also undertaking major efforts in monitoring wildlife responses to shrubsteppe restoration activities (Edwards and Howe 2004) and plans to initiate similar broad-scale efforts in riparian project monitoring (Fairchild pers. commun.).

Implementation monitoring – an important subset of assessment monitoring is implementation monitoring. When an action is implemented, it is important to evaluate whether the activity has been carried out as designed (Morrison 2002). In other words, it is necessary to determine if the treatment was applied as it was conceptualized and prescribed. Managers must be able to evaluate why an action is successful or unsuccessful and gain a clear understanding of what was actually implemented so that future assessments are based on what actually occurred. An example would be monitoring habitat (vegetation) responses to sagebrush treatments (implementation monitoring) in addition to monitoring sage-grouse response to the treatments (assessment monitoring).

What to measure – monitoring factors might include direct measurements of wildlife populations or indirect measures such as population indexes or habitat. Direct measures might include population size, density, population trend, productivity, survival, fitness, and/or demographic factors. Indexes may be substituted for direct population measures, however, these can only be used effectively if the relationship between the index and the population parameter is well understood. Likewise, habitat can be used as a surrogate for direct population measures if the relationship between the habitat and population is well defined (monitoring of key habitats is described below). In many cases, a combination of direct and indirect measures will be appropriate.

Monitoring Key Habitats

Habitats should be monitored when possible in conjunction with species monitoring (Morrison 2002). Because of limited resources and a need to focus our efforts, habitat monitoring will be targeted to areas containing species of the greatest conservation need (Tier I, II, and III species). We will pay particular attention to monitoring areas where habitat restoration activities are planned or have already occurred. This "pre" and "post" habitat treatment monitoring will provide the information needed to determine which habitat restoration activities are successful. We will then be able to modify future treatments for maximum benefit.

Lowland riparian, mountain riparian, and water (lentic and lotic) habitats will be monitored through a methodology that considers the condition of the entire hydrologic zone. Although there is not a current state-wide riparian inventory in Utah, the UDWR is currently working with the BLM and the USFS to create a riparian vegetation inventory system. In addition to vegetation, our monitoring of the hydrologic zone will include water quality data collected by the Utah Department of Environmental Quality consistent with their Total Maximum Daily Load (TMDL) protocols used to assess degree of water body impairment relative to the intended uses, including wildlife. The Binns HQI method (Binns 1982) is also used to assess aquatic habitat quality, especially in waters managed for trout fishing.

The specific protocols (gear types, vessels, time of day, etc.) used to monitor lentic and lotic aquatic habitats in Utah are dependent on the characteristics of the body of water of interest. Both lentic and lotic (standing and flowing) habitats are usually selectively sampled, i.e., representative sample locations are chosen and, in many cases, regularly monitored. Results are assembled and usually compared to similar samples taken in previous years in order to detect population and/or habitat trends. With time and sufficient data (see below) UDWR anticipates increasingly taking a watershed approach to monitoring aquatic habitats with expansion of the representative sampling described above. In general we will assume that improvements in the conditions of these habitats will improve the conditions of the species therein. In reservoirs where conservation pools exist, we will monitor and maintain those conservation pools. Conservation pools are minimum reservoir levels required for conservation of aquatic wildlife.

Wetland habitats will be monitored in several ways. Many important Utah wetlands are managed by UDWR as Waterfowl Management Areas (or WMAs). These WMAs are closely monitored and managed by Division staff. In addition, UDWR is an active participant in the Intermountain West Joint Venture (IWJV), and we will utilize the wetland focus area monitoring data collected through IWJV activities. IWJV is a public/private partnership dedicated to the conservation of bird habitat in the western states. Finally, we will utilize available satellite imagery to detect changes in wetland abundance throughout Utah over time. The Utah

Coordinated Bird Monitoring Plan (Seglund et al. 2005) has identified several important wetland areas across the state.

Shrubsteppe, mountain shrub, wet meadow, grassland, and aspen habitats will be monitored using a modified Daubenmire methodology for estimating herbaceous plant cover (UDWR 1996). Additional methodologies will be employed for monitoring shrub and tree cover. The UDWR has already refined these methodologies, and they have been successfully used to monitor shrubsteppe and other big game habitats throughout Utah for many years (UDWR 1996).

EXPERIMENTAL AND MONITORING DESIGN

The information provided by well designed monitoring projects approaches that of formal experiments (Block et al. 2001). Incorporating experimental design components into the monitoring process greatly strengthens the inference (applicability) of the results. For example, design components such as random selection of study areas (or animals), random assignment of treatments (including controls) over space and time, and replication, should all be used whenever possible in adaptive management monitoring. While this cannot always be done, relaxation of some rigorous design procedures will not automatically invalidate the monitoring results. For example, treatments may have been conducted on areas that were not randomly assigned. Data from treated areas and randomly assigned control areas may yield useful information for management purposes. While some design procedures can be relaxed, formalizing predictive models and monitoring management outcomes (i.e., implementation monitoring) are essential to learning about species and habitat conservation using adaptive management.

Controlled experiments may sometimes be desirable where adequate randomization, control, and replication are possible and cost effective. In other cases it may be best to combine true experiments with monitoring to take advantage of the strengths of both processes. Monitoring alone can often provide suitable results. In all situations, the feedback loop from action to result and back to action is critical.

Analyzing monitoring data most effectively will require the use of several techniques including traditional hypothesis testing, as well as less traditional techniques such as information theoretics methods (Burnham and Anderson 2001) and meta-analysis (Franklin and Shenk 1995). In the simplest terms, traditional hypothesis testing can be used to determine whether actions do or do not produce their intended effect; information theoretic analysis allows for model comparisons to determine which competing action performs better at meeting the objective; and meta-analysis can be used to compare results from similar studies in different areas to achieve broader inference (Johnson 2002).

Our ability to detect treatment effects and make inferences depends on our ability to randomly assign plots, measure differences between control and treatment plots, and collect data before and after treatments are applied. This can be thought of as a continuum from no information to information providing strong inference on cause and effect (Figure 9-3).

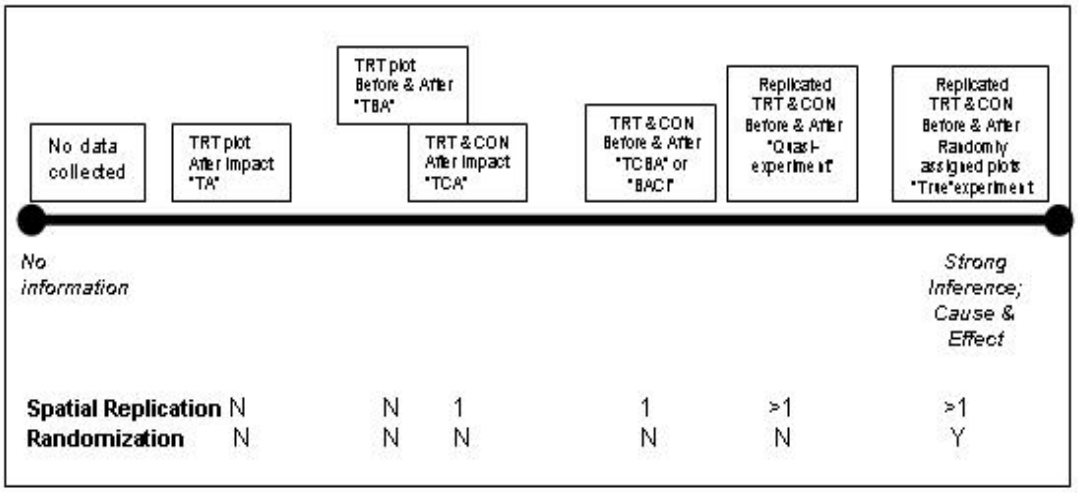

Figure 9-3. Information Continuum and Monitoring Designs.
Designs are indicated in boxes; relative location of "TBA" and "TCA" may shift. Spatial replication is geographic distribution of plots (1 refers to a single replicate CON vs. TRT); temporal replication is distribution of measurements across time. Randomization means treatments (TRT & CON) are randomly assigned to plots. T=Treatment Plot, C=Control Plot, A=After Impact, B=Before Impact.

Ideally, data are collected before and after randomly assigned treatments in several areas undergoing alteration as well as several unaltered or control areas (spatial replication); this is a "true" experiment. A more practical monitoring design which still yields good inference differs from a "true" experiment only in that the treatment and control areas are not randomly assigned (Elzinga et al. 2000, Morrison et al. 2002); this is often referred to a "quasi-experimental" design (Thompson et al. 1998). In cases where only one control and one treatment plot are available, a Before-After-Control-Impact or BACI design (Smith 2002) can be used.

Geographic Scale of Monitoring

Specific adaptive management objectives and measures will vary with habitat, species, ecoregion, possibly watershed, and, to a lesser extent, project. However, adaptive management will generally take place on two basic scales: the focus area level and the statewide habitat level. Our approach will be to develop a statewide model and divide it into sub-models based on habitat type and/or species. For example, one Division objective is to increase sage-grouse populations statewide. This will be accomplished through several individual projects across the state designed to enhance sage-grouse habitat. Each project will be monitored (habitat and sage-grouse response) and adjusted if project objectives are not met. Results from all individual projects (and additional monitoring data) will be used to evaluate the overall success of the statewide program and adjust that program as needed (see Chapter 11). Similarly, we have separated Utah's species (Tier I-III) by habitat type and can now develop a management plan for each habitat type.

The same process (plan-implement-monitor-plan) will be used at both the individual project and statewide habitat levels, and for both individual and statewide projects, we will use species (Tier I-III) and habitat responses as the metrics of success. Based on the best available information, preferred conservation actions and a few specific alternatives will be created, i.e. modeled. Monitoring responses to management actions will help inform and direct our decisions on continuing or changing management.

DATABASES AND MONITORING

The Division has developed several databases for tracking various species and habitat monitoring efforts. Although these databases were developed for different purposes, they are all linked through the use of common fields and consistent species and habitat codes. The relational aspect of the Division's databases allows users to easily summarize all work related to a particular species or habitat type. In addition, because these databases are spatial (linked to GIS files), users can also easily summarize all work that has occurred in a particular location.

Species Monitoring Databases

For species of conservation need, the Division's management sections have developed numerous detailed monitoring databases to track the distribution and status of species populations over time. Examples of such databases include: the Columbia spotted frog database, which contains information specific to frog monitoring, such as number of egg masses, population size, and wetland habitat conditions; and the Mexican spotted owl database, which contains information specific to raptor monitoring, such as nest location, number of eggs, and number of individuals successfully fledged each year. These databases are continually updated as new field data become available.

Once each year, the information from all of the Division's species monitoring databases is imported into the Division's central biodiversity database, which currently contains over 21,000 rare species locality records and is managed by the Division's Utah Natural Heritage Program. In addition to Division data, Utah Natural Heritage Program staff add new species locality records to the central database as data are received from cooperating agencies, such as the U.S. Forest Service and the Bureau of Land Management, museums, universities, and other sources. All data provided to the Utah Natural Heritage Program are quality-controlled and converted to a standard format before they are added to the central biodiversity database. The quality-control process ensures that the data are accurate and reliable, whereas the conversion to a standard format allows data from many sources to be easily queried, summarized, and distributed. In addition, because the same standard format is used by Natural Heritage Programs/Conservation Data Centers in all 50 states, most Canadian provinces, and many Latin American countries, the standardization allows data from many jurisdictions to be easily combined into large datasets that cross state and national boundaries. These "multi-jurisdictional" datasets allow for much more effective broad-scale conservation planning.

Although the Division currently has systems for monitoring species population information (see above) and habitat-related conservation actions (see below), we do not currently track the non-habitat conservation actions (e.g., reintroductions, relocations) that are implemented to benefit a particular species. As part of Utah CWCS implementation, the Division will develop a database to track non-habitat conservation actions. Once this database is complete, we will be

able to quickly answer questions such as: "Which research projects were implemented to benefit greater sage-grouse?," "How many least chub population surveys were conducted last year?," or "What conservation actions were taken to benefit pygmy rabbit during the first year of Utah CWCS implementation?" This spatial database will use the same species codes as the Division's other species monitoring databases so that information from all databases can be easily related, queried, and summarized.

Habitat Monitoring Databases

As part of the habitat monitoring efforts described elsewhere in this chapter, the Division has developed and refined a spatial database that tracks habitat conditions across time. In addition to this monitoring database, the Division has recently developed a database that allows us to track the amount of each habitat type that is restored or protected during Utah CWCS implementation. This database (Appendix F) includes such information as habitat-restoration project descriptions, project locations and maps, land ownership, project dates, project sizes, project costs, pre-project and post-project photographs, species benefited, and so on. The combination of these data with habitat monitoring data will allow us to determine what has been accomplished over the course of the Utah CWCS. It will also allow us to document that we are meeting the terms of conservation agreements, species management plans, and cooperative agreements that include obligations to restore or protect set amounts of habitat. Moreover, because this database uses the same codes as the species databases discussed previously, we will be able to summarize all conservation actions (both habitat and non-habitat) implemented for any species or in any particular area.

Utah CWCS Master Database

All of the species and habitat databases discussed above are under the umbrella of the new Utah CWCS Master Database recently developed by the Division. This database, which contains the threats and conservation actions identified throughout the Utah CWCS for all species and habitats of conservation need, is linked through species and habitat codes to the Division's species and habitat monitoring databases. Through these links, users can identify threats, proposed conservation actions, implemented conservation actions, and species/habitat response for all habitats and species of conservation need throughout the course of Utah CWCS implementation.

COMPILING AND ANALYZING MONITORING RESULTS

Making appropriate use of the data that become available through the Division's activities will be critical to justifying the efforts necessary to collect the data. Assuming that appropriate management questions have been asked, appropriate monitoring has been initiated to answer the questions, and data has been collected and analyzed to support the answers, wildlife and habitat management is incomplete if the conclusions of the monitoring efforts have not been applied to appropriate modifications of management actions. The Division proposes to institute a biennial review process to institute a complete feedback loop, where conclusions and recommendations are applied to management. While the biennial review is specifically designed to review and

assess monitoring information, it is only a part of the overall CWCS review process described in Chapter 11.

Under the biennial review process, UDWR Program Coordinators and their staffs will review the information in their Section Databases on a regular basis for accuracy and completeness, culminating in a comprehensive review every two years. This biennial review will allow for an assessment of conservation priorities within their section. The Program Coordinators will then meet with whatever staff they determine necessary to review the information presented in the Master Database for accuracy and completeness, updated as appropriate with information from the Section Databases. Following review of the Master Database the Coordinators will set the Division's conservation priorities, including what actions are to be taken and how results will be monitored and reported, for the following two-year period. This prioritization will be presented to Section Chiefs, Division Administration, and CWCS partners for review and approval. These Master Database reviews and statewide prioritization meetings will be completed, including database update and prioritization report, not later than 1 December in odd numbered years. The first review and prioritization meeting and reporting will be completed not later than 1 December 2007. Biennial review will not only help insure that the CWCS is meaningfully implemented, but will provide needed documentation of progress on a regular basis that can be assembled each decade when the CWCS expires and is due for review and revision.

SUCCESSFUL ADAPTIVE MANAGEMENT

To ensure that individual focus area objectives and statewide objectives are similar, the various sections and regions of UDWR will need to communicate effectively. This will be accomplished, in part, by following the CWCS; however, it will also require close communication among those who develop and implement projects (e.g., regional habitat biologists) and those who set statewide objectives (state office program coordinators). UDWR will facilitate this communication through the annual workplan process (see Chapter 11) and through the Habitat Project Database (Appendix G). Interagency communication is also critical and is discussed in Chapters 10 and 11.

Success at adaptive management will also require periodic compilation of data and re-evaluation of objectives (see above), which will both need to be done at relatively frequent intervals; however, the interval depends in large part on the time it takes species or habitats to respond to conservation actions. For example, sage-grouse may respond to sagebrush cover reduction in one or two years, but songbirds may not respond to riparian tree plantings for nearly a decade. Habitat responses will, in some cases, occur more quickly and provide a strong indicator of management success or need for adaptation.

Long-term adaptive management plans need to be flexible to both political change and environmental change. Changes in administrations often result in changes in funding for monitoring and implementation. For an adaptive management plan to be resilient, it must be based on the best available information and it must be frequently updated with new information. Scientific defensibility is the best insurance for a continually successful adaptive management plan.

In summary, adaptive management is a formal process of formulating predictive models for conservation actions, implementing the actions, monitoring the effects of the actions, then revising the predictive models and beginning again. Key steps involve developing conservation objectives, formulating predictive models, implementing management actions and monitoring

the results. Adaptive management is an effective tool for continually improving management of CWCS species and habitats. The success of this process relies on effective and continuous communication, effectual database management and periodic review of monitoring data.

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CHAPTER 10 . AN IMPLEMENTATION PLAN FOR UTAH'S COMPREHENSIVE WILDLIFE CONSERVATION STRATEGY

Utah's Watershed Restoration Initiative, an implementation vehicle for Utah's Comprehensive Wildlife Conservation Strategy (CWCS), is a partnership-driven effort that will focus on priority habitats identified in the strategy and habitats that contain wildlife species of conservation need and/or lands that are in need of restoration in order to benefit a diversity of land and water uses. The partnership driving this conservation effort is known as the Utah Partners for Conservation and Development (UPCD/Partnership), an organization that represents state and federal natural resource agencies, universities, county and local government, private landowners, conservation organizations, and vested stakeholders. The Partnership's organizational infrastructure and guiding principals are outlined in a joint resolution supported by all participants and Utah's governor. The resolution identifies the long-term need to address the risks to our natural resources and develop a shared vision. It also sets priorities for: 1) restoration and management, 2) leveraging technical and financial resources, and 3) improving communication and cooperation among participants and stakeholders. The partnership effort includes a statewide core team and five regional teams that represent the participant agencies, organizations and vested interests. The purpose of the teams is to: 1) serve as a clearinghouse for coordinating and sharing conservation concerns and priorities of participants, 2) discuss potential solutions and, 3) foster an atmosphere of collaboration for implementing conservation activities.

VALUES

The Partnership has identified shared natural resource issues and interests that transcend agency jurisdictions and geo-political boundaries. As part of this initiative, the implemented conservation strategies will be of benefit to:

1. Utah's native wildlife and biological diversity;
2. Water quality and yield for municipal, agricultural and wildlife uses;
3. Sustainable agriculture through working farms and ranches; and
4. Outdoor recreation opportunity access, delivery and quality

RISKS

The Partnership has identified five major risk factors or threats that are contributing to the declining trends in wildlife populations, and also negatively impact other goods and services provided by Utah's land base. These factors are biological and social and include:.

1. Invasion of exotic species and pathogens (exotic plant species and plant and animal diseases)
2. Intensity and frequency of wild fire;
3. Land fragmentation through changing land uses or poorly planned developments;
4. Lack of public understanding of ecological principles and processes and the impact these have on our daily lives; and
5. Lack of systematic and consistent cross boundary conservation planning, execution, monitoring and evaluation.

STRATEGIES

Three general strategies to restore ecosystem health have been developed to address these risks to the shared interests of the Partnership.

1. Physical interventions that may include: a) mechanical and/or physical means such as seeding, planting, reconstruction, and/or vegetation management, and/or b) species reintroductions/augmentations.
2. Administrative changes in land and/or water management through permitted or allowed uses or management prescriptions, so that declining land/water health may be reversed without physical intervention.
3. Communication and team building with the public, stakeholders and our conservation partners to better understand the risks to natural resources and values, to create communities of practice that will sustain and encourage support, and to improve cooperation and problem solving across boundaries.

INFRASTRUCTURE

The Watershed Restoration Initiative, along with CWCS, will only be successful if it involves systematic and consistent collaboration among our conservation partners. This will be accomplished by ensuring that the development of conservation objectives, targets and monitoring frameworks are goal driven. The Partnership is represented at four different levels of organization: 1) UPCD Director's Council, 2) UPCD Statewide Core Team, 3) five Regional Teams, and 4) Local Conservation Workgroups.

Top administrators of agencies meet regularly as the UPCD Director's Council (see below) to discuss and address national and statewide conservation and environmental issues. Each member of the Council has a representative in the state-level group (Statewide Core Team), which also includes representatives from organizations such as The Nature Conservancy and The Audubon Society. The Statewide Core Team meets regularly to monitor the effectiveness of each agency and organization in the partnership, share information about new programs, discuss issues and address resource allocation needs. Five regional teams (Northern, Central, Northeast, Southeast, and Southern) are in place to discuss regional priority conservation areas, identify potential projects, and pool resources (funding, technical assistance, logistic support) needed to carry out both land and water restoration projects. Regional teams are made up of UPCD representatives and other stakeholders in conservation, such as, local conservation organizations, county officials, and landowners. Local conservation work groups operate at a watershed or soil conservation district level and identify local conservation concerns and develop local conservation strategies to meet local needs while achieving regional and statewide conservation goals.

The regional teams serve as the clearinghouse for conservation priorities and are developing 3 to 5 year conservation plans that map focus areas for restoration and conservation activities that include measurable goals, objectives and targets. The regional teams collaboratively develop program work plans and site-specific projects and budgets. The process required to take a project from inception to implementation is expected to be 18 months or longer. Project plans and budgets will be developed in year one and environmental clearances and project implementation phases will occur in year two. The 18 month, or longer, timeframe for project implementation will allow for collaborative planning among statewide program coordinators, regional teams,

various levels of government, conservation organizations and landowners. This timeframe will better ensure the availability of adequate resources and appropriate coordination including a monitoring strategy.

UPCD Director's Council

Utah Dept. of Natural Resources	Utah Dept. of Agriculture & Food
US Bureau of Land Management	US Forest Service
Utah State University Extension Service	Utah Dept. of Environmental Quality
USDA Natural Resources Conservation Service	Utah RC&D Councils Association
Utah Association of Conservation Districts	US Bureau of Reclamation
US Fish & Wildlife Service	US Park Service
US Farm Services Agency	Utah School & Inst. Trust Lands

RESTORATION PLANS

Statewide and regional wildlife and habitat restoration plans will guide conservation planning, execution and evaluation of conservation programs and activities. The elements for statewide and regional restoration plans will be developed collaboratively by the Partnership between three integrally related teams: management, science and conservation outreach. By employing this strategy the following questions will be addressed:

1. What will be conserved or restored?
2. What scale is needed?
3. Where should it be done?
4. How should it be done?
5. Who among conservation partners can best carry out the different elements of the effort?
6. How will the effectiveness of actions be monitored, evaluated and demonstrated?
7. How will communities of practice initiate and sustain conservation stewardship?

Restoration plans will be focused on key habitats (Chapter 6) where there is documented decline in ecological integrity. Goals, objectives and targets will be established for each focus area. Individual project design and implementation will address targets with measurable objectives within a 3 to 5 year window. Projects are expected to have multiple year implementation schedules in order to address the spatial and temporal needs of wildlife and other on-going land uses.

Partnership team function

Management.—The management team will ensure that conservation information and priorities contained in wildlife and habitat restoration plans are systematically and consistently coordinated with other plans (Chapters 3 and 4).

Science.—The science team is a collaborative partnership of UPCD participants. The primary function of this team is to ensure that accurate and reliable information is available to managers and decision makers. The basic elements this team is responsible for include:

1. Monitoring, assessment, and reporting activities.

2. Identifying focus areas for restoration/conservation activities that are paired with priority habitats and species of greatest conservation need.
3. Creating a state-level database of conservation actions undertaken by the UPCD.
4. Identifying available information sources and determining what data are needed to meet requirements.
5. Determine what elements of monitoring are suitable for citizen involvement and train volunteers in data collection.
6. Work with partners to secure and/or enhance GIS data layers.
7. Develop an efficient and effective system for reporting and disseminating information.

CHAPTER 11 . REVIEW AND UPDATE THE STRATEGY
(Element 6)

UTAH'S CWCS REVISION AND ADAPTIVE UPDATE PROCESSES

Annual Progress

One-Year Work Plan Development.—The Utah CWCS Partner Group will be convened on a yearly basis to review and consider the current status of progress for the year past and year to come. Each Partner will report on its progress toward addressing the threats and conservation actions identified in the CWCS for both species and habitats (i.e., Tables 5.1 and 6.1 respectively). For example, the DWR has an internal annual work plan development process for setting project goals and objectives that will be aligned with working toward addressing the CWCS threats and actions specific to priority habitats and species of conservation need.

Similarly, the Utah Partners for Conservation and Development (UPCD) have a Core Team and five Regional Implementation Teams serving as the operational arms of a major, statewide rangeland and watershed habitat restoration program. The UPCD habitat restoration projects identified annually will be assessed/compared with the overall program and will continue to be collaboratively aligned with Utah's CWCS' top habitat priorities for conserving, protecting and managing wildlife habitat in rangeland (i.e., shrub-steppe) and watershed (i.e., riparian areas).

Updates

Interim Internal Evaluations.— DWR CWCS leaders to determine through coordination and communication with CWCS Partners whether projected tasks, timelines and resources are in synch with CWCS Partner Group resources and efforts available and demonstrated. This may occur as frequently as yearly.

Intermediate Reviews.— UDWR Program Coordinators and staff may conduct a comprehensive review of information on a regular basis aside from mid and end-point assessment revisions – see 5-year and 10-year Horizons below. Such intermediate reviews can allow for an assessment of progress in addressing priorities for threat reduction and conservation action within their respective DWR Section (Chapter 9). Such reviews can help insure that the CWCS is meaningfully considered and will provide documentation of progress that can be referred to when the CWCS is due for more in-depth revision and review. If conducted, these should be independent of the five- and ten- year assessments that begin in Years 4 and 8 respectively.

Process Framework and Flexibility

Partners Scheduled Plan Inputs and Unanticipated Events.—Whenever scheduled Plan Revisions or unanticipated events occur, all members of the CWCS Partner Group and UPCD will be advised at the earliest opportunity. Any changes made will necessarily affect CWCS progress and expectations; they will be recorded and filed for reference and retrieval purposes. Any interventions potentially required will be addressed by all Partners on an as needed, agreed upon basis.

5-year Horizon

Adjusting the Course Mid-Stream.—The desired end-result is to simultaneously assess the approximate midpoint of the decade worth of effort, identifying where we have made progress and where we have yet to progress sufficiently toward our 10-year Horizon outcomes. Preliminary trend data on four years' worth of habitat and species conservation actions and threats reduction will be prepared by the CWCS Partner Group (including UPCD Teams and DWR CWCS Team) for analysis, discussion and redirection following the four year anniversary so that, six months in advance of the expiration of the first five-year Horizon we are prepared to make public recommendations for the second 5-Year Horizon and modify our expectations for the 10-year Horizon accordingly.

The Utah CWCS Partner Group will jointly discuss and readjust accordingly to progress as much as possible toward the 10-year Horizon, recognizing that in all likelihood, our second 5-year Horizon may need to be changed to reflect actual realities, accounting for intervening factors (i.e., unanticipated events), issues and constraints. As well, adjustments will be made to take advantage of unforeseen opportunities to progress beyond the anticipated 10-year Horizon outcomes in a manner consistent with other projected trends.

10-year Horizon

Re-Focusing on the Long Term Direction.—The requirement is to completely assess and revise the CWCS on a 10-year time frame. In order to do so, one-year prior, at a Progress Meeting of the CWCS Partner Group, a comprehensive assessment will be conducted to critically review the eight elements of the CWCS and how well they have been addressed here in Utah.

DWR CWCS Team, UPCD Core Team/Regional Implementation Teams and CWCS Partner subgroups will be reconvened prior to that session (1.5 years in advance of the 10-year Horizon) in order to develop our suggested cumulative amendments and adjustments to threat reduction and conservation actions taken to address the original (or since modified) CWCS purpose. These subgroups will assess and present findings, as well as identify and prepare new/revised/same recommendations for the CWCS Partner Group's consideration at a Progress meeting held approximately a year before the 10-year timeframe expires.

Six months prior to the expiry of the 10-year Strategy, a formal release of a draft of the Utah Comprehensive Wildlife Conservation Strategy: The 2nd Decade, will be routed to all interested public and potentially affected interests for their review, comment and suggestions. Recommendations of merit shall be incorporated and the CWCS Partner Group will again present the revised, composite version of the Strategy to the Resource Development Coordinating Council, the five DWR Regional Advisory Councils and the Utah Wildlife Board for approval/acceptance. Should there be another, similar federal submittal requirement as per the development of this inaugural Strategy, our specified timeline will be appropriately altered to also meet with its deadline and stipulations for submittal.

To Infinity and Beyond

It is the intent that, as long as State Wildlife Grant funding is available to the State of Utah through federal agency budgeting, and monies are appropriated by Congress for state use, that a cyclical process for the review, revision and re-release of a 10-year Strategy will be continued ad infinitum.

CHAPTER 12 . ACKNOWLEDGEMENTS

The Utah Division of Wildlife Resources wishes to acknowledge and thank various public and private contributors to this document and to also recognize the support received from the Utah Department of Natural Resources for its support in accomplishing this initial endeavor toward implementing the Strategy statewide.

Similarly, we wish to thank and encourage all those members of the public who contributed to the formulation of this Strategy and to their dedication and commitment in ensuring its efforts to turn not only dirt but minds toward the long term, sustainable management and protection of our state's fish and wildlife species and habitats of greatest conservation need.

Finally, we are indebted to the many Division staff who gave of their time, expertise and passion to ensure that Utah's fish and wildlife, as well as their habitats, are managed in a sustainable manner for future generations. For a brief period of time we were fortunate to have a visionary leader and valued colleague, the late Director Kevin Conway, guide us in the development of this Strategy. We will always remember his spirit and dedication. The next generation of leaders and employees are determined to make a positive difference and this Strategy will serve as an instrumental tool toward effecting successful conservation in Utah.

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Other DWR Salt Lake personnel and many Regional Offices' personnel were also instrumental in our completion of this Strategy. To all those who are unnamed, we thank each of you for your invaluable contributions.

APPENDIX A . Utah Code Annotated 1953/TITLE 23 WILDLIFE RESOURCES CODE /CHAPTER 13 GENERAL

PROVISIONS /23-13-2. Definitions.
23-13-2. Definitions.

Statute text
As used in this title:
(1) "Activity regulated under this title" means any act, attempted act, or activity prohibited or regulated under any provision of Title 23 or the rules, and proclamations promulgated thereunder pertaining to protected wildlife including:
(a) fishing;
(b) hunting;
(c) trapping;
(d) taking;
(e) permitting any dog, falcon, or other domesticated animal to take;
(f) transporting;
(g) possessing;
(h) selling;
(i) wasting;
(j) importing;
(k) exporting;
(l) rearing;
(m) keeping;
(n) utilizing as a commercial venture; and
(o) releasing to the wild.
(2) "Aquatic animal" has the meaning provided in Section 4-37-103.
(3) "Aquatic wildlife" means species of fish, mollusks, crustaceans, aquatic insects, or amphibians.
(4) "Aquaculture facility" has the meaning provided in Section 4-37-103.
(5) "Bag limit" means the maximum limit, in number or amount, of protected wildlife that one person may legally take during one day.
(6) "Big game" means species of hoofed protected wildlife.
(7) "Carcass" means the dead body of an animal or its parts.
(8) "Certificate of registration" means a document issued under this title, or any rule or proclamation of the Wildlife Board granting authority to engage in activities not covered by a license, permit, or tag.
(9) "Closed season" means the period of time during which the taking of protected wildlife is prohibited.
(10) "Conservation officer" means a full-time, permanent employee of the Division of Wildlife Resources who is POST certified as a peace or a special function officer.
(11) "Dedicated hunter program" means a program that provides:
(a) expanded hunting opportunities;

(b) opportunities to participate in projects that are beneficial to wildlife; and
(c) education in hunter ethics and wildlife management principles.
(12) "Division" means the Division of Wildlife Resources.
(13) (a) "Domicile" means the place:
(i) where an individual has a fixed permanent home and principal establishment;

(ii) to which the individual if absent, intends to return; and
(iii) in which the individual, and the individual's family voluntarily reside, not for a special or temporary purpose, but with the intention of making a permanent home.
(b) To create a new domicile an individual must:
(i) abandon the old domicile; and
(ii) be able to prove that a new domicile has been established.
(14) "Endangered" means wildlife designated as such pursuant to Section 3 of the federal Endangered Species Act of 1973.
(15) "Fee fishing facility" has the meaning provided in Section 4-37-103.
(16) "Feral" means an animal which is normally domesticated but has reverted to the wild.
(17) "Fishing" means to take fish or crayfish by any means.
(18) "Furbearer" means species of the Bassariscidae, Canidae, Felidae, Mustelidae, and Castoridae families, except coyote and cougar.
(19) "Game" means wildlife normally pursued, caught, or taken by sporting means for human use.
(20) (a) "Guide" means a person who receives compensation or advertises services for assisting another person to take protected wildlife.
(b) Assistance under Subsection (20)(a) includes the provision of food, shelter, or transportation, or any combination of these.
(21) "Guide's agent" means a person who is employed by a guide to assist another person to take protected wildlife.
(22) "Hunting" means to take or pursue a reptile, amphibian, bird, or mammal by any means.
(23) "Intimidate or harass" means to physically interfere with or impede, hinder, or diminish the efforts of an officer in the performance of the officer's duty.
(24) "Nonresident" means a person who does not qualify as a resident.
(25) "Open season" means the period of time during which protected wildlife may be legally taken.
(26) "Pecuniary gain" means the acquisition of money or something of monetary value.
(27) "Permit" means a document, including a stamp, which grants authority to engage in specified activities under this title or a rule or proclamation of the Wildlife Board.
(28) "Person" means an individual, association, partnership, government agency, corporation, or an agent of the foregoing.
(29) "Possession" means actual or constructive possession.

(30) "Possession limit" means the number of bag limits one individual may legally possess.
(31) (a) "Private fish installation" means a body of water where privately owned, protected aquatic wildlife are propagated or kept.
(b) "Private fish installation" does not include any aquaculture facility or fee fishing facility.
(32) "Private wildlife farm" means an enclosed place where privately owned birds or furbearers are propagated or kept and which restricts the birds or furbearers from:
(a) commingling with wild birds or furbearers; and
(b) escaping into the wild.
(33) "Proclamation" means the publication used to convey a statute, rule, policy, or pertinent information as it relates to wildlife.
(34) (a) "Protected aquatic wildlife" means aquatic wildlife as defined in Subsection (3), except as provided in Subsection (34)(b).
(b) "Protected aquatic wildlife" does not include aquatic insects.
(35) (a) "Protected wildlife" means wildlife as defined in Subsection (49), except as provided in Subsection (35)(b).
(b) "Protected wildlife" does not include coyote, field mouse, gopher, ground squirrel, jack rabbit, muskrat, and raccoon.
(36) "Released to the wild" means to be turned loose from confinement.
(37) (a) "Resident" means a person who:
(i) has been domiciled in the state of Utah for six consecutive months immediately preceding the purchase of a license; and
(ii) does not claim residency for hunting, fishing, or trapping in any other state or country.
(b) A Utah resident retains Utah residency if that person leaves this state:
(i) to serve in the armed forces of the United States or for religious or educational purposes; and
(ii) complies with Subsection (37)(a)(ii).
(c) (i) A member of the armed forces of the United States and dependents are residents for the purposes of this chapter as of the date the member reports for duty under assigned orders in the state if the member:
(A) is not on temporary duty in this state; and
(B) complies with Subsection (37)(a)(ii).
(ii) A copy of the assignment orders must be presented to a wildlife division office to verify the member's qualification as a resident.
(d) A nonresident attending an institution of higher learning in this state as a full-time student may qualify as a resident for purposes of this chapter if the student:
(i) has been present in this state for 60 consecutive days immediately preceding the purchase of the license; and
(ii) complies with Subsection (37)(a)(ii).
(e) A Utah resident license is invalid if a resident license for hunting, fishing, or trapping is purchased in any other state or country.
(f) An absentee landowner paying property tax on land in Utah does not qualify

as a resident.
(38) "Sell" means to offer or possess for sale, barter, exchange, or trade, or the act of selling, bartering, exchanging, or trading.
(39) "Small game" means species of protected wildlife:
(a) commonly pursued for sporting purposes; and
(b) not classified as big game, aquatic wildlife, or furbearers and excluding turkey, cougar, and bear.
(40) "Spoiled" means impairment of the flesh of wildlife which renders it unfit for human consumption.
(41) "Spotlighting" means throwing or casting the rays of any spotlight, headlight, or other artificial light on any highway or in any field, woodland, or forest while having in possession a weapon by which protected wildlife may be killed.
(42) "Tag" means a card, label, or other identification device issued for attachment to the carcass of protected wildlife.
(43) "Take" means to:
(a) hunt, pursue, harass, catch, capture, possess, angle, seine, trap, or kill any protected wildlife; or
(b) attempt any action referred to in Subsection (43)(a).
(44) "Threatened" means wildlife designated as such pursuant to Section 3 of the federal Endangered Species Act of 1973.
(45) "Trapping" means taking protected wildlife with a trapping device.
(46) "Trophy animal" means an animal described as follows:
(a) deer - any buck with an outside antler measurement of 24 inches or greater;
(b) elk - any bull with six points on at least one side;
(c) bighorn, desert, or rocky mountain sheep - any ram with a curl exceeding half curl;
(d) moose - any bull;
(e) mountain goat - any male or female;
(f) pronghorn antelope - any buck with horns exceeding 14 inches; or
(g) bison - any bull.
(47) "Waste" means to abandon protected wildlife or to allow protected wildlife to spoil or to be used in a manner not normally associated with its beneficial use.
(48) "Water pollution" means the introduction of matter or thermal energy to waters within this state which:
(a) exceeds state water quality standards; or
(b) could be harmful to protected wildlife.
(49) "Wildlife" means:
(a) crustaceans, including brine shrimp and crayfish;
(b) mollusks; and
(c) vertebrate animals living in nature, except feral animals.

APPENDIX B . PUBLIC AUDIENCES, STAKEHOLDERS, AND AGENCIES CONTACTED FOR CWCS PARTNERSHIP

[*Staff Presentations Made*[1] *&/or Information Personally Distributed*]

2004

USFWS – Region Six CWCS Staff Northern Utah Tour of Rangeland & Riparian Projects; 8/18-19/04

Wildlife Section Staff Annual Wildlife (statewide) Section Mtg., Utah Division of Wildlife Resources, Fillmore, Utah; 9/8/04

Aquatics Section Staff (statewide) Annual Aquatics Section Mtg., Utah Division of Wildlife Resources, St. George, Utah; A. Clark; 9/21/04

National Association of Counties - Western Interstate Region Conference; Ogden, UT; 5/27/2004

American Planning Association – Utah Chapter; SLC, UT; 9/22-24/2004*

Wasatch Front Regional Council – Regional Growth Committee; SLC, UT; 9/30/2004*

USDA Natural Resources Conservation Service Leadership/Partners; SLC, UT; 10/20/2004

Utah Society for Environmental Education; SLC, UT; 10/21-22/2004

USDI Fish & Wildlife Ecoregional Planning Workshop: Upper Colorado River Basin & Utah Study Area; Grand Junction, CO; 10/26- 27/2004

Utah Farm Bureau's Threatened & Endangered Species Task Force – statewide meeting of county representatives; SLC, UT; 10/26/2004 (Rory Reynolds)

Utah Association of Conservation Districts Annual Conference; 11/2-3/2004, SLC, UT; (Rory Reynolds/Dean Mitchell)

Utah Governor's Office of Planning & Budget – Critical Lands Project Staff; 11/18/2004, SLC, UT*

South Eastern Utah Association of Governments; Price, UT; 11/18/2004 (Dana Dolsen & Paul Birdsey, SER Aquatics Manager)

[1] All presentations, unless another staff person is named, were made by Mr. Dana E. Dolsen, CWCS Coordinator and Wildlife Planning Manager, Utah Division of Wildlife Resources

* Information distributed; presentation not made.

KCPW Public Affairs Hour (National Public Radio @ 1010 AM, 88.3 FM and 105.3 FM) WEDNESDAY, NOVEMBER 24, 2OO4 [Interview at 9:10 a.m.] http://www.kcpw.org/public-affairs-hour.php

Uintah Basin Association of Governments; Vernal, UT; 12/03/2004

Utah Division of Wildlife Resources, Salt Lake Office Staff; 12/13/04

2005

Utah Dept. of Transportation – Environmental Section Managers; SLC, UT; 01/06/05 @ 8:45 a.m.

Rich County Coordinated Resource Management meeting; Utah State University, Logan, UT; 1/7/05 @ 10 a.m.*

Sagebrush Restoration Initiative Teams – Orientation Workshop; 01/11/2005; Red Lion Hotel, Salt Lake City

Utah Farm Bureau (UFB) Sensitive Species Task Force – Box Elder County; 01/18/2005 Tremonton

Utah Anglers' Coalition – 01/19/2005; DNR, SLC

UFB Sensitive Species Task Force – Cache Co., 1/21/2005*; Logan

Wild Utah Project, SUWA, Western Wildlife Conservancy - 01/21/2005; SLC

Utah Soil Conservation Commission/Districts – 01/25/05; SLC

Utah Quality Growth Commission – 1/26/2005; SLC

Utah Reclamation Mitigation and Conservation Commission - 01/27/05; SLC

Utah Farm Bureau Sensitive Species Task Force – Morgan Co., 01/27/2005; Morgan, UT

Utah Resource Conservation & Development Association Annual Meeting, 02/01/05; Utah State Valley College, Orem

United States Army – Environmental Program, Steve Plunkett; 02/01/05; Dugway Proving Ground

Utah Cooperative Wildlife Management Unit Association, 02/03/05; Lee Kay Center, SLC

Utah Farm Bureau Sensitive Species Task Force, Tooele Co.; 02/17/2005; Tooele

U.S. Air Force, Utah Range Planning & Programming Board; 02/24/05; SLC

USFS Forest Supervisors' Meeting, 03/02/05, SLC

Utah Farm Bureau Sensitive Species Task Force, Carbon Co.; 03/03/2005; Price

US BLM Southeast District Meeting, 03/08/05; Moab

US BLM Southeast District Meeting, 03/11/05; Price

US BLM Southeast District Meeting, 03/25/05; Kanab (Jim Parrish)

US BLM Southeast District Meeting, 03/29/05; Richfield

USFS Region 4 Integrated Resource Workshop "Working Together Towards Healthy Forests", Ogden, UT; Topic 30 – Rm. 5: 1:00 p.m., 04/12/2005

Upcoming

Utah Chapter American Planning Association – Spring Conference: Rural Planning Issues; 05/06/05, 9 a.m., Torrey

APPENDIX C . GENERAL PROGRAMS FOR PUBLIC EDUCATION AND INVOLVEMENT

Adopt-a-Waterbody.—In 2004, 67 new adoption locations were added to the Adopt-a-Waterbody program. One or more groups have worked at each site to improve lakes and streams throughout Utah. An element of the program, watershed education, reached approximately 23,000 people through such venues as the Sportsman's Expo, Great Salt Lake Bird Festival, etc. Hatchery tours were provided to over 7,000 people during the summer months.

Aquatic Education. — This program focuses on resource stewardship and angler recruitment and retention, and provides watershed and aquatic and terrestrial species education to youth and adults. The UDWR staff has worked with 56 schools to present formal classroom watershed and aquatic education to over 6,000 students in grades 4 though 9. Additionally, information has been provided in informal settings, such as the Utah State Fair, International Sportsman's Expo, Utah Boating and Fishing Expo, Great Salt Lake Bird Festival, Davis County Fair, Utah Boy Scouts Scout-a-rama, Utah Envirothon, Utah State Parks and Utah State University (USU). Educational lessons and presentations are aligned to Utah State Education Core Curriculum requirements as prescribed by the Utah State Office of Education. Organized stewardship projects including trash cleanup, planting vegetation, removing invasive plant species, stabilizing stream banks and monitoring water quality (all of which may benefit both aquatic and terrestrial sensitive species). As we recruit new anglers and get them involved in a lifetime recreational skill, stewardship and ethics are a large part of the information imparted to them.

Educating the non-angling public on stewardship issues and having them become advocates for the conservation of wildlife and habitats, particularly those of greatest conservation need, are also priorities. DWR's public outreach programs that stress the protection of wildlife habitat and watersheds, including sensitive species and their habitats, are critical for sustainable quality of human life, outdoor recreation activities and for people to have a quality outdoor experience.

The program has the support of many retail stores, such as Sportsmen's Warehouse, as well as several wholesalers. Retailers that provide DWR with discounted materials as well as an abundance of donated items include Fish Tech Outfitters, Hooked, Berkley, Pure Fishing, Eagle Claw, and Stutsman Rods. We collaboratively share responsibilities in numerous outreach and education efforts, which affect the conservation behaviors of citizens, especially youth, thus potentially indirectly benefiting sensitive species and their habitats. The Future Fisherman Foundation, also a partner, and does several "Hooked on Fishing, Not on Drugs" workshops throughout the year.

Bald Eagle Day.—This day is set aside annually on the first Saturday in February to provide public citizens the opportunity to learn about the national bird and to see the species in its natural settings. Attendees learn about Bald Eagle natural history and ecology, the importance of preserving this magnificent bird, and preserving bald eagle habitats in their local area. This activity is well received and well attended.

Blue Ribbon Fisheries.—Direct and indirect relevance to sensitive species and associated habitat conservation. An Advisory Council advises DWR on direct restoration, conservation, and protection of aquatic systems (i.e., waters and watersheds) that may support sensitive species. The council is comprised of representatives from various angling organizations. However, members are not nominated to any categorical representative position, but are currently appointed by the Governor and do represent regional interests.

Annually, make recommendations to spending up to the Division Director of approximately $500,000 to enhance and restore aquatic habitat, protect sensitive species such as native cutthroat trout, and develop public awareness, access, and understanding of these valuable natural resources. Funding comes from a portion of the revenue received from the sale of fishing licenses. This benefits the DWR in license sales and other economic benefits to Utah, especially in rural areas of the state. Ten such projects are currently underway in FY 05, seven of which involve sensitive aquatic species/habitat.

Brian Head Field Ecology.—Direct and indirect relevance to sensitive species and associated habitat conservation. This is a 5-day field ecology and training course for secondary level educators conducted by Southern Utah University, Dixie National Forest and the Division. Educators conduct field studies in spruce/fir forests near Cedar Breaks NM to monitor ecological trends in forests suffering from insect infestation. Topics of investigation include trends in small mammal, forest bird and insect populations, evidence of human impacts, and measurement of vegetative changes. Participating teachers design and conduct their own experiment. They then use the skills they learn during this course to establish lesson plans for their own science class projects. Participants can receive certification and/or college credit for this course. Results are used by management agencies to develop management strategies and compiled in an annual report. Future professional publications are anticipated.

Community Fisheries.—This program provides a service by offering a local recreation destination site to individuals within communities. In 2004, 1,700 youth took part in an 8-week youth fishing program, enabling youth, their siblings and parents opportunities to interact, associate, and learn from the DWR staff on an informal basis for two hours a week. The program trains and uses volunteers from the local communities to mentor the youth in the youth fishing program. Last year there were 250 active volunteers who provided over 2,700 hours or roughly $52,000 in donated time. These volunteers were recruited from church groups, eagle scouts, schools, and local fishing clubs. The donated volunteer time donated acts as a match to moneys from USFWS grants. Volunteers planted trees, shrubs, sedges, rushes, and grasses to help provide habitat for the wildlife and fish in the project areas, thus achieving management goals and reclamation of previously undesirable land that may in turn support sensitive species. This volunteerism is critical for not only the immediate ecological benefit, but for the longer term "buy-in" that will guarantee support for managing fish and wildlife of greatest conservation need.

The interaction between families and the Utah Division of Wildlife Resources (DWR) will only increase support for other DWR programs, such as sensitive species conservation in the future. Exposure to ecological concepts may encourage greater support for the protection/restoration of sensitive species and their associated habitats.

Benefits the DWR from the increased fishing license sales that the local fisheries provide, as well as the future license sales to the youth that are involved in the youth fishing programs in the community fisheries.

Several fishing organizations have assisted in the development of these fisheries and their sustainability is supported by these groups. They have helped transplant fish into new or struggling community waters to restore the ecological balance of the fisheries, some of which support a variety of terrestrial and/or aquatic sensitive species. These groups also donate fishing rods, hooks, jigs, and money for habitat restoration. These groups include: Trout Unlimited, Sportsmen for Fish and Wildlife, Rocky Mountain Anglers, Utah Bass Federation, Hi Country Bass Masters, Strawberry Anglers, Stone Fly Society, 4-H, as well as other local sportsmen groups. Sportsmen for Fish and Wildlife, Trout Unlimited, 4-H, and Hi Country Bass Masters adopted five youth fishing clubs for which they take full responsibility.

The program has the support of many retail stores, such as Sportsmen's Warehouse, as well as several wholesalers. Retailers include Fish Tech Outfitters, Hooked, Berkley, Pure Fishing, Eagle Claw, and Stutsman Rods. These stores provide DWR with discounted materials as well as donated items. DWR works directly with the Utah Botanical Center and Utah State University as active partners. We collaboratively share responsibilities in numerous outreach and education efforts, which affect the conservation behaviors of citizens, especially youth, thus potentially indirectly benefiting sensitive species and their habitats. Retail sales partners share DWR concerns about angler recruitment. The youth are our future license buyers and conservationists and without them, aquatic systems and sportfish programs both have no future. The DWR Habitat Council allocated over $500,000 dollars towards projects including planting trees, shrubs, rushes and sedges to improve the habitat in over 75 acres of wetlands/ponds which may foster greater involvement in the restoration, protection and conservation of aquatic systems that support sensitive species.

Dedicated Hunters (DH) & Volunteers.—The DH program began in 1995 and in exchange for additional hunting opportunities, participants provide at least 24 hours of service as a volunteer on Wildlife Conservation Projects. In fiscal year 2004 volunteers provided just over 89 thousand hours of service for the division, equating to nearly 43 full-time employees. Due to these volunteer efforts, the division was able to claim $187,252.28 in Federal Aid. Participants in the Dedicated Hunter program accounted for 70 percent of the volunteer effort in fiscal year 2004. The division uses specially trained volunteers to provide informational field trips and hands-on education programs at Hardware Ranch, Farmington Bay Waterfowl Management Area and the states fish hatcheries.

The division is also working on a Master Naturalist certification program that will enhance people's love of nature with a research-based, scientific training program coupled with community-based volunteer service. Master Naturalist volunteers will provide the DWR and community with volunteer service in the form of educational activities, public relations, and so forth.

Migratory Bird Day.—This is an annual observation and celebration of the importance of migratory bird species to the environment and their role/position in Utah. Conducted by the UDWR in association with numerous groups, including USFS, BLM and The Audubon Society. Goals of this event are to 1) inform the public of the great

diversity of birds in North America and Utah, 2) explain the important role these birds play in our environment, 3) train the public in bird identification, 4) educate the public about the natural history of birds, 5) educate the public about ways they can help birds in their own communities, 6) offer tips on landscaping yards for birds (and often providing suitable plants with which to begin landscaping projects).

Project WILD.—This program focuses on training teachers and other youth educators to inform and educate students and young citizens throughout the state. Our trained educators use Project WILD Activity Guides, which include several activities that address threatened and endangered species. Project WILD also maintains a library of wildlife education information trunks, that include resources about various sensitive, threatened and endangered species, which trained educators can borrow.

Conservation education activities that help youth learn about wildlife and its conservation are modeled by qualified, trained Project WILD facilitators. Since 1983 in Utah, more than 11,000 Project WILD educators have been trained, and each educator reaches an average of 80 students per year. In 2003-04, all trunks were used more than 230 times, reaching 17,876 children. DWR personnel frequently use Project WILD materials and activities when they make presentations throughout the state. During 2004, more than 45,000 students and other youth benefited from such programs, conservation fairs and sporting shows, etc.

In 2004, the Project WILD program completed a new Utah Wildlife Photo Series Packet which includes a set of sixteen 8 ½" x 11" cardstock picture cards. Information on the reverse side of each picture card tells about the particular species depicted on the front. Written text includes classification of the species, including those of greatest conservation need, notable features, habitat/habits, and management and conservation information, plus a range map. Via a grant from the State of Utah's Department of Natural Resources' Endangered Species Mitigation Fund, cards for six Utah species of special concern were included in this new photo packet. The Outdoor Resources Foundation provided some funding for the printing of the remaining 10 photo cards. Over 1,000 schools throughout the state received a new wildlife photo packet in 2004. In an effort to establish a revolving fund project, the balance of packets are available to interested persons for a small donation intended to help produce future wildlife photo packets for free school distribution.

Strawberry Valley Wildlife Festival.—The festival celebrates the diversity and abundance of wildlife in the valley to increase awareness and appreciation for species of conservation need. Conservation organizations provide festival booths and displays that promote a common vision of watershed health and balanced resource uses in Strawberry Valley. Formal presentations by sensitive species experts focus on improving habitat for sensitive species. Festival sponsors include DWR (Central Region lead), USFS, Wasatch County, City of Heber, Friends of Strawberry Valley, Strawberry Anglers Association and others.

Live Sage Grouse Exhibit at Tracy Aviary.—This exhibit will house live Greater Sage-grouse taken as eggs from the nest of birds from the Parker Mountain population of grouse. The exhibit is a cooperative effort between DWR (Central Region lead), Tracy Aviary, and possibly the local Resource Conservation & Development Council and U.S. FWS. Solicitation and acquisition of funding, and volunteers with expertise in architecture, construction, etc., has started. Photos and video footage of strutting age-

grouse will be used with a television monitor in a kiosk at the display. The aviary receives 80,000 visitors annually, plus in-class presentations will further educate thousands more. The potential exists of using the aviary project to raise and release sage-grouse into the wild. The project's other purpose is to educate the public about the UDWR's Habitat Restoration Initiative and the importance of preserving shrubsteppe.

Columbia Spotted Frog Reintroduction At Swaner Nature Preserve.—The reintroduction project is the first on-the-ground activity ever conducted in the United States to expand the range of the Columbia spotted frog. Between 4,000 and 5,000 spotted frog tadpoles were released in May, 2004 and will be monitored throughout the future. Outreach efforts include in-depth strategies to publicize the project and educate both the local public, potentially achieving national awareness. Benefits of the publicity campaign have provided awareness, appreciation and stewardship for this sensitive species. Note: Shortly after the event, a new bookstore was seen in Park City called "The Spotted Frog Bookstore", thus indicating a great level of success with this outreach campaign. All Park City school children have been made aware of the project as well. Partners include DWR (Central Region lead), Brigham Young University, Swaner Nature Preserve (in Park City), Natural Resource Conservation Service, landowners, and local governments.

Sensitive Species Education Campaigns for Schools Students & Scouts.—Thousands of school children and scouts in the Central Region are educated annually by UDWR personnel regarding Utah's sensitive species, increasing their awareness, appreciation, and stewardship. Scout requirements for their "bear" advancement and at least one other merit badge require doing research, sometimes directly with UDWR personnel, on sensitive/extinct species.

APPENDIX D . MONITORING METHODS FOR TIER I, II, AND III SPECIES IN UTAH

Amphibian Species	**CWCS Tier**	**Population Monitoring Methods**
Arizona toad	II	Direct observation, call monitoring
Canyon treefrog	III	Direct observation, call monitoring
Columbia spotted frog	I	Egg mass counts; mark/recapture population estimates
Great plains toad	III	Direct observation, call monitoring
Mexican spadefoot	III	Direct observation, call monitoring
Northern leopard frog	III	Direct observation, call monitoring
Pacific treefrog	III	Direct observation, call monitoring
Plains spadefoot	III	Direct observation, call monitoring
Relict leopard frog	I	extirpated
Western toad	II	Direct observation, call monitoring; egg mass counts; mark/recapture population estimates

Bird Species	**CWCS Tier**	**Population Monitoring Methods**
American Avocet	III	GSL Waterbird Surveys
American White Pelican	II	GSL Waterbird Surveys, Nest site surveys
Bald Eagle	I	Nest site surveys, Midwinter surveys
Band-tailed Pigeon	III	Nest site surveys, BBS
Bell's Vireo	III	Riparian point transect surveys, Mist net
Bendire's Thrasher	III	Tape-playback, BBS
Black Rosy-finch	III	Alpine Line Transect surveys
Black Swift	II	Nest site surveys
Black-billed Cuckoo	III	Tape-playback
Black-necked Stilt	III	GSL Waterbird Surveys
Black-throated Gray Warbler	III	Pinyon-juniper point count surveys, BBS, Mist Net
Bobolink	II	Tape-playback

Boreal Owl	III	Tape-playback
Brewer's Sparrow	III	Shrubsteppe Line Transect surveys, BBS, Mist Net, Spot Map
Broad-tailed Hummingbird	III	Riparian point transect surveys, BBS, Mist net
Burrowing Owl	II	Tape-playback, Nest site surveys, BBS
California Condor	I	Respond to reports, Nest site surveys
Caspian Tern	III	GSL Waterbird Surveys
Crissal Thrasher	III	Tape-playback, BBS
Ferruginous Hawk	II	Nest site surveys, Aerial surveys
Gambel's Quail	III	BBS
Grasshopper Sparrow	II	Tape-playback, Line Transect surveys, Breeding Bird Survey point counts (BBS)
Gray Flycatcher	III	BBS, Tape-playback
Gray Vireo	III	Pinyon-juniper point count surveys, BBS, Mist Net
Greater Sage-grouse	II	Lek Counts, Brood Counts
Gunnison Sage-grouse	I	Lek Counts, Brood Counts
Lewis’s Woodpecker	II	Tape-playback
Long-billed Curlew	II	Great Salt Lake (GSL) Waterbird surveys
Lucy's Warbler	III	Riparian point transect surveys, BBS, Mist Net
Mexican Spotted Owl	I	Tape-playback, Nest site surveys
Mountain Plover	III	GSL Waterbird Surveys
Northern Goshawk	I	Tape-playback
Osprey	III	Nest site surveys
Peregrine Falcon	III	Nest site surveys
Sage Sparrow	III	Shrubsteppe Line Transect surveys, BBS, Spot Map
Sage Thrasher	III	Shrubsteppe Line Transect surveys, BBS, Spot map
Sharp-tailed Grouse	II	Lek Counts, Brood Counts
Short-eared Owl	II	Nest site surveys, BBS
Snowy Plover	III	GSL Waterbird Surveys
Southwestern Willow Flycatcher	I	Tape-playback
Three-toed Woodpecker	II	Tape-playback
Virginia's Warbler	III	Riparian point transect surveys, BBS

Whooping Crane - extirpated	I	Respond to reported observations
Williamson's Sapsucker	III	Tape-playback
Yellow-billed Cuckoo	I	Tape-playback

Fish Species	**CWCS Tier**	**Population Monitoring Methods (CPUE = Catch per Unit Effort)**
Bear Lake sculpin	II	Trawls/CPUE
Bear Lake whitefish	II	Gill nets/CPUE
Bluehead sucker	I	Electroshocking/depletion population estimates, mark/recapture population estimates; seines
Bonneville cisco	II	~~H~~ydroacoustics/population estimates
Bonneville cutthroat trout	I	Spawning traps, electroshocking/depletion population estimates
Bonneville whitefish	II	Gill nets/CPUE
Bonytail	I	Trammel nets; mark/recapture population estimates
Colorado pikeminnow	I	Electroshocking; mark/recapture population estimates/CPUE; seines
Colorado River cutthroat trout	I	Electroshocking/depletion population estimates; Spawning traps
Desert sucker	II	Electroshocking/depletion population estimates
Flannelmouth sucker	I	Electroshocking/depletion population estimates; mark/recapture population estimates; seines
Humpback chub	I	Trammel nets; mark/recapture population estimates
June sucker	I	Utah Lake: trap netting, trawling; spawning trap, light traps; Refuges: trap nets, gill nets; trammel nets
Lahontan cutthroat trout	I	Electroshocking~~;~~ relative abundance
Least chub	I	Minnow traps for presence/absence, length/frequency analysis of population structure
Leatherside chub	II	Electroshocking/depletion population estimates
Longnose dace	III	Electroshocking/depletion population estimates/ relative abundance
Paiute sculpin	III	Electroshocking/depletion population estimates/ relative abundance
Razorback sucker	I	Electroshocking/ CPUE; light traps
Redside shiner	III	Electroshocking/depletion population estimates/ relative abundance
Roundtail chub	I	Trammel nets; electroshocking; mark/recapture population estimates

Speckled dace	III	Electroshocking/depletion population estimates/ relative abundance
Utah chub	III	Electroshocking/depletion population estimates/ relative abundance
Utah sucker	III	Electroshocking/depletion population estimates/ relative abundance
Virgin River chub	I	Seines
Virgin spinedace	I	Depletion sampling with seines and block nets for representative reach population counts
Woundfin	I	Seines
Yellowstone cutthroat trout	II	Electroshocking/depletion population estimates

Mammal Species	**CWCS Tier**	**Population Monitoring Methods**
Allen's Big-eared Bat	II	ANABAT Acoustic detection; mist-netting, night vision equipment, trip cameras
American Marten	III	Hair scent stations; trapping lines or grids
American Pika	III	Rock pile surveys via ground searches; visitor questionnaires
Big Free-tailed Bat	II	ANABAT Acoustic detection; mist-netting, night vision equipment, trip cameras
Black-footed Ferret	I	Spotlight transects; ground surveys
Brown (Grizzly) Bear - extirpated	I	Hair scent stations; radio-telemetry
Canada Lynx	I	Hair scent stations; aerial and ground winter track surveys
Dark Kangaroo Mouse	II	Live trap line transects
Desert Kangaroo Rat	III	Grid or line transects of snap or live traps
Desert Shrew	III	Pitfall traps (grids and/or line transects)
Dwarf Shrew	III	Pitfall traps (grids and/or line transects)
Fringed Myotis	II	ANABAT Acoustic detection; mist-netting, night vision equipment, trip cameras
Gray Wolf – extirpated	I	Aerial winter track surveys; radio-telemetry
Gunnison's Prairie-dog	II	Aerial colony surveys, ground line transects
Idaho Pocket Gopher	III	Gopher kill traps; genetic data needed
Kit Fox	II	Scent station transects
Merriam's Shrew	III	Pitfall traps (grids and/or line transects)
Mexican Vole	II	Pitfall traps (grids and/or line transects)
Mule Deer	III	Aerial and ground surveys; line transect; area counts

Northern Flying Squirrel	III	Grid or line transects of snap or live traps
Northern River Otter	III	Ground surveys for animal sign
Northern Rock Mouse	III	Grid or line transects of snap or live traps
Olive-backed Pocket Mouse	III	Grid or line transects of snap or live traps
Preble's Shrew	II	Pitfall traps (grids and/or line transects)
Pygmy Rabbit	II	Pellet Plots; spotlight surveys; line transects;
Silky Pocket Mouse	II	Grid or line transects of snap or live traps
Spotted Bat	II	ANABAT Acoustic detection; mist-netting, night vision equipment, trip cameras
Spotted Ground Squirrel	III	Grid or line transects of snap or live traps
Stephen's Woodrat	III	Grid or line transects of snap or live traps
Thirteen-lined Ground Squirrel	III	Grid or line transects of snap or live traps
Townsend's Big-eared Bat	II	ANABAT Acoustic detection; mist-netting, night vision equipment, trip cameras
Utah Prairie-dog	I	Ground surveys
Western Red Bat	II	ANABAT Acoustic detection; mist-netting, night vision equipment, trip cameras
White-tailed Prairie-dog	II	Aerial colony surveys, ground line transects
Wolverine	III	Hair scent stations; aerial and ground winter track surveys
Wyoming Ground Squirrel	III	Grid or line transects of snap or live traps
Yuma Myotis	III	ANABAT Acoustic detection; mist-netting, night vision equipment, trip cameras

Mollusk Species	**CWCS Tier**	**Population Monitoring Methods**
Bear Lake spingsnail	II	Direct observation of individuals
Bifid duct pyrg	II	Direct observation of individuals
Black Canon pyrg	II	Direct observation of individuals
Black gloss	III	Direct observation of individuals
Brian Head mountainsnail	II	Direct observation of individuals
California floater	II	Direct observation of individuals
Carinate Glenwood pyrg	II	Direct observation of individuals
Cloaked physa	II	Direct observation of individuals
Creeping ancylid	III	Direct observation of individuals

Cross snaggletooth	III	Direct observation of individuals
Deseret mountainsnail	II	Direct observation of individuals
Desert springsnail	II	Direct observation of individuals
Eureka mountainsnail	II	Direct observation of individuals
Fat-whorled pondsnail	I	One square meter area counts and extrapolation
Glass physa	III	Direct observation of individuals
Glossy valvata	III	Direct observation of individuals
Hamlin Valley pyrg	II	Direct observation of individuals
Kanab ambersnail	I	Count per square area and extrapolation
Longitudinal gland pyrg	II	Direct observation of individuals
Lyrate mountainsnail	II	Direct observation of individuals
Mill Creek mountainsnail	III	Direct observation of individuals
Montane snaggletooth	III	Direct observation of individuals
Ninemile pyrg	II	Direct observation of individuals
Northwest Bonneville pyrg	II	Direct observation of individuals
Ogden Rocky mountainsnail	I	Direct observation; Population counts
Otter Creek pyrg	II	Direct observation of individuals
Ovate vertigo	III	Direct observation of individuals
Ribbed dagger	III	Direct observation of individuals
Rocky Mountain Duskysnail	III	Direct observation of individuals
Sharp sprite	III	Direct observation of individuals
Sluice snaggletooth	III	Direct observation of individuals
Smooth Glenwood pyrg	II	Direct observation of individuals
Southern Bonneville pyrg	II	Direct observation of individuals
Southern tightcoil	II	Direct observation of individuals
Sub-globose Snake pyrg	II	Direct observation of individuals
Utah physa	II	Direct observation of individuals
Western pearlshell	II	Direct observation of individuals
Wet-rock physa	II	Direct observation of individuals
Yavapai mountainsnail	II	Direct observation of individuals

Reptile Species	**CWCS Tier**	**Population Monitoring Methods**
Black-necked garter snake	III	Direct observation of individuals; pit fall traps
Coachwhip	III	Direct observation of individuals; pit fall traps
Common chuckwalla	II	Direct observation of individuals; pit fall traps
Common gartersnake	III	Direct observation of individuals; pit fall traps
Common kingsnake	III	Direct observation of individuals; pit fall traps
Cornsnake	II	Direct observation of individuals; pit fall traps
Desert iguana	II	Direct observation of individuals; pit fall traps
Desert night lizard	II	Direct observation of individuals; pit fall traps
Desert tortoise	I	Line transect population estimates, using individuals and signs observed
Gila monster	II	Direct observation of individuals; pit fall traps
Glossy snake	III	Direct observation of individuals; pit fall traps
Groundsnake	III	Direct observation of individuals; pit fall traps
Lesser earless lizard	III	Direct observation of individuals; pit fall traps
Long-nosed leopard lizard	III	Direct observation of individuals; pit fall traps
Long-nosed snake	III	Direct observation of individuals; pit fall traps
Many-lined skink	III	Direct observation of individuals; pit fall traps
Milksnake	III	Direct observation of individuals; pit fall traps
Mojave rattlesnake	II	Direct observation of individuals; pit fall traps
Nightsnake	III	Direct observation of individuals; pit fall traps
Plateau striped whiptail	III	Direct observation of individuals; pit fall traps
Ring-necked snake	III	Direct observation of individuals; pit fall traps
Rubber boa	III	Direct observation of individuals; pit fall traps
Sidewinder	II	Direct observation of individuals; pit fall traps
Smith's black-headed snake	III	Direct observation of individuals; pit fall traps
Smooth greensnake	II	Direct observation of individuals; pit fall traps
Sonora Mountain kingsnake	III	Direct observation of individuals; pit fall traps
Speckled rattlesnake	II	Direct observation of individuals; pit fall traps
Spotted leaf-nosed snake	III	Direct observation of individuals; pit fall traps
Western Banded Gecko	II	Direct observation of individuals; pit fall traps

Western lyresnake	III	Direct observation of individuals; pit fall traps
Western patch-nosed snake	III	Direct observation of individuals; pit fall traps
Western skink	III	Direct observation of individuals; pit fall traps
Western threadsnake	II	Direct observation of individuals; pit fall traps
Zebra-tailed lizard	II	Direct observation of individuals; pit fall traps

APPENDIX E . HABITAT PROJECT DATABASE (HPD)

Instructions & Business Rules
1/12/05

Habitat Project Proposal Form

Note: You can exit the form at any time by clicking on the "Close/Done" tab or the close button in the upper right-hand corner of the screen. The "Convert This Proposal to a Project" button is password protected. The proposal will be converted to a project when funding sources are confirmed and the Director authorizes expenditures. As soon as it is converted to a project, Fiscal Management will enter a Fiscal Project Number.

Project Title, Location and General Information Form

Proposal Title: Choose a name that is unique to the project. If it's a multi-year project, identify the year (1, 2, 3, etc.).

DWR Region: Enter one of the selections from the pull-down menu.

Lead Agency: Identify the agency that will be responsible for project expenditures and accounting. If more than one agency or organization is funding portions of the project independently, enter the agency or organization that also has assumed responsibility for implementing the project (ie., supervises the contractor).

Proposal File Name: If an independent proposal has been prepared already, save it in S:\DWR\HPD-2006\Proposals\…and enter the file name here. It may be useful as a reference when applying for additional funding for the project, but it will not be the "official" proposal. Also, for DWR WMA maintenance proposals, save the spreadsheets showing maintenance activities by WMA in S:\WMA\HPD-2006\WMA\Region\… and enter the file name here.

Proposal Submitter: The individual that enters the data into the "Project Proposal" database. Ideally, this is the person who is most knowledgeable about the proposal and the need for the project. However, they may not be the one assigned to implement the project.

Project Description: A brief summary describing the project. Identify the output ("Improve 500 acres of deer winter range by chaining and seeding a pinyon-juniper woodland," or "Restore 1000 acres of sage-grouse habitat by thinning sagebrush with a Dixie harrow and seeding"), not the expected outcome ("Increase carrying capacity of deer winter range," or "Increase local sage-grouse population").

Project Start Date: If approved, enter the date when project-related expenditures need to begin (date project accounts need to be finalized). The "project" may be a seeding that begins

in the fall, but the project-related activities (ie., archaeological clearances or pretreatment monitoring) may involve expenditures earlier in the fiscal year.

Project End Date: Enter the date when all project-related activities are scheduled for completion (post-treatment monitoring excluded).

Project Location: Give general location information, ie., "5 miles east of Sterling on the Manti-LaSal National Forest," or "A one-mile section of the East Fork Sevier River, five miles downstream from Otter Creek Reservoir."

Info 1 Tab

Project Map: See instructions for inserting a file in the space provided. If you want, you can insert a photo of the project area in this space.

GIS File Name: A GIS file (typically a shape file) showing the project area is required for each proposal. Save the GIS file in S:\DWR\HPD-2006\GIS Shape Files\… and enter the file name here. If the proposed treatment will not occur uniformly across the project area, make this apparent in the GIS file. For instance, if only part of a burned area will be rehabilitated, differentiate the treated and untreated areas in the GIS file. There are no required attribute fields in the GIS file, but please include any necessary information that is not already included elsewhere in the Habitat Project Database.

Metadata File Name: Save the metadata files associated with each GIS file in S:\DWR\HPD-2006\GIS Metadata\… and enter the file name here. All DWR metadata should meet Federal Geographic Data Committee (FGDC) standards, which are commonly used in the GIS field. The S:\DWR\HPD-2006\GIS Metadata/DWRMetadataStandards.doc file gives brief explanations of the types of information appropriate for each metadata field. If you have any questions about metadata or metadata creation tools, please contact Dave Mann, DWR GIS Manager, at davemann@utah.gov or 801-538-4859. Because much of the information in your metadata files will not change from file to file, you may want to create a complete metadata file for your first GIS file, and then simply edit this metadata file for subsequent GIS files.

Project Type: Enter one of the selections from the pull-down menu. Your choice carries forward to the "Habitat Project" section of the database and will direct you to one of four "Project Work Detail" forms where specific project-related information is stored.

Estimated Cost: Enter the cost estimate for the entire project. If the project is to be done over a three-year period, enter the cost for all three years. All subsequent budget and funding entries will be limited to a specified fiscal year. Full-time personal services charges for planning or implementation, which are covered by existing operating budgets, should not be included.

UPCD Regional Team Coordination Date: If applicable, enter the regional team meeting date when the proposal was discussed and recommended for approval.

Conservation Outreach: Check if any conservation outreach activity is recommended as part of the project. DWR regional management teams will identify which projects merit special attention, with significant input from Conservation Outreach Managers.

Conservation Outreach Details: If applicable, enter a brief narrative (2-3 sentences) describing the conservation outreach activities that are planned in conjunction with this project.

Info 2 Tab

Regional Priority: Enter the priority that best describes the importance of the project in addressing regional conservation goals and objectives. A low priority should be assigned to any project that is not located in a regional priority area. If the Division has made a commitment, legal or otherwise, enter "obligation."

Description of Priority: Give some basis for the selected priority.

Proposal Submission Date: Enter the date when a completed project proposal (all data entered into the "Habitat Proposal Form" portion of the HPD) is reviewed by the management team and approved by the regional supervisor.

Habitat Council Reviews: If applicable, enter the date(s) that the proposal was reviewed by the Habitat Council.

Mitigation Project: Check if the proposed project satisfies a mitigation requirement for one of the funding partners.

Grazing Management Plan: Check if a grazing management plan has been prepared, approved by project partners and included as part of the project proposal.

Grazing Management Plan File: Save grazing plans in S:\DWR\HPD-2006\Grazing Management Plans\… and enter the file name here.

Potential Risks: Discuss the potential of the proposed project for adversely impacting wildlife populations and also characterize the risk of the project not being successful.

Seed Source: If seed is to be provided by DWR, or with partner funds routed through the DWR accounting system, enter "GBRC." If not, enter "other."

Seed File Name: Save seed mixtures in S:\DWR\HPD-2006\Proposed Seed Mix\…and enter the file name here. For assistance in developing seed mixtures, contact GBRC personnel. The seed mix may change after the proposal is approved. The actual seed mix used will be referenced in the "Terrestrial Habitat Project Detail" portion of the "Habitat Project Form."

Supporters: Check if agencies, organizations or individuals, other than funding partners, supported the project at the regional team meeting.

List of Supporters: Enter the name of all agencies, organizations and individuals that supported the project proposal at the regional team meeting, other than funding partners.

Proposed NEPA Action: To be entered by SLO (password protected field).

Proposed Archaeological Action: To be entered by SLO (password protected field).

Need/Evaluation Tab

Description of Problem/Need: This section provides evidence on the nature of the problem and the need to address it. The significance of the problem is documented, using a variety of data sources. For example, if a habitat restoration project is being proposed to benefit sage-grouse, describe the existing plant community characteristics that limit habitat value for sage-grouse and identify the changes needed for habitat improvement.

Relevance To Other Planning Efforts: If the proposed project is identified as a strategy for achieving conservation goals and objectives that are stated in an existing planning document, identify the document and discuss the relevance of this proposal to the successful implementation of the plan. Examples of conservation plans include DWR species management plans, Utah Reclamation, Mitigation, Conservation Commission CUP mitigation plans, BLM Resource Management Plans, National Forest Plans, various coordinated resource management plans, watershed management plans, etc. If the proposal has no relevance to a conservation planning effort, enter "not applicable."

Methods: This section describes the activities and tasks of the proposed project, how the activities will be carried out, what equipment will be used, when, and by whom. The section describes how certain conservation goals and objectives will be achieved.

Vegetation Monitoring: To be entered by SLO (password protected field).

Wildlife Monitoring: To be entered by SLO (password protected field).

Monitoring Details: To be entered by SLO (password protected field). Describe the monitoring that will take place (methods, schedule and assignments).

Budget Tab

Item: Identify the budget categories from the drop-down list that relate to project expenditures.

Description: Give a brief description of the item (s) purchased. For example, for "Personal Services," it may be "2 months of seasonal personnel time @ $1500/ month," or for "Seed" it may be "20,000 lbs of seed @ $3.00/lb."

$ DWR Accounts: Enter the cost estimate by budget item if payments will be made through DWR's accounting system.

$ Partner Contributions: Enter the cost estimate by budget item if partner will make payments directly to vendor(s).

Funding Tab

Source: Identify potential funding sources (internal and external) based on discussions with SLO personnel and regional partners. If a source is not included on the pull-down menu list, contact SLO to get it added.

$ Amount Requested: Enter the amount requested from each source.

Date Approval Recommended at Local Level: Enter the regional team meeting date when regional representatives approved the requested amounts.

Date Approved: To be entered by SLO upon confirmation that funds are available.

Amount Approved: To be entered by SLO upon confirmation that funds are available.

DWR Accounting System: Check if the funds are to be run through DWR's accounting system. If so, and if the contributions are from external sources, cooperative agreements will be required prior to establishing the account. Donations received from conservation organizations (conservation permit funds) will not require cooperative agreements. Unchecked boxes indicate that funding partners will pay vendors directly for goods or services associated with the project.

In-Kind: Check if the contribution is "in-kind," which means that it represents a donation of labor, materials or equipment needed to complete the project. Again, full-time personal services costs that are already covered by an agency or organization should not be included in this category.

Proposed Funding Allocation: For Habitat Council projects only, break out the benefits by program.

Funding Comments:

Species Benefiting/Habitat Type(s)

Species Benefiting: Enter the species from the pull-down menu that are expected to benefit from the project.

Habitat Types: Enter the habitat types from the pull-down menu and the proportion of each type that are included in the project.

Project Log Tab

Date: Enter the date the entry is made into the project log.

Comment: This field is available to all personnel that are involved with a project proposal and will be used to record project-related information during the proposal phase of the project. A similar tab is available in the "Habitat Project" portion of the database. **Important Note: Once entered, the comment cannot be edited or deleted.** The space can be used to reference an important document, agreement or e-mail message that has been saved on the S drive (S:\DWR\HPD-2006\Misc*Region**Project Name*\…).

Landownership Tab

Owner: Identify the property ownerships associated with the project area.

Acres: If applicable, identify acres restored or protected by landownership.

Habitat Project Form

This portion of the database

Project Manager: May be different from "Proposal Submitter" entered in the "Proposal Form" portion of the database. Enter the name of the person assigned the responsibility to implement the project.

PM Phone Numbers:

Fiscal Year Approved: Enter Utah State fiscal year account is created.

Fiscal Year Completed: Enter Utah State fiscal year project is completed (account closed).

Project Approval Date: Enter the date project is approved by DWR Division Director.

Expenditures/Funding Tab

Year-End DWR Expenditure Summary & Amount: To be entered by SLO Fiscal Management (password protected field). SLO will enter the total amount spent by funding source, when the final year-end closeout figures are available.

Expenditure Comments: Enter any explanations that are necessary to explain spending activity for this project.

RDCC Approval Date: Enter the date that the project was approved by RDCC.

Fiscal Project Number: To be entered by SLO Fiscal Management (password protected field).

Other Data Tab

Date Project Completed: Enter the date when all project activity is completed (with the exception of post-treatment vegetation or wildlife monitoring).

Shapefile Name:

Metadata File Name:

NEPA Complete Date: To be entered by SLO (password protected field).

NEPA Details: To be entered by SLO (password protected field).

Archaeology Complete Date: To be entered by SLO (password protected field).

Archaeology Details: To be entered by SLO (password protected field).

Photos: Check if project photos are available.

Photo File Names: Save photos in S:\DWR\HPD-2006\Photos*Region**Project Name*\…and enter the file name(s) here. This will serve as a temporary storage location until the Conservation Outreach Section develops a system for storing all Division photos.

Vegetation Monitoring: Check if pre-treatment vegetation monitoring was completed in conjunction with this project.

Wildlife Monitoring: Check if pre-treatment wildlife monitoring was completed in conjunction with this project.

Monitoring Details: Describe the monitoring that was accomplished (biologists involved, methods used, data storage location, etc.).

Project Log Tab

Date: Enter the date the entry is made into the project log.

Comment: This field is available to all personnel that are involved with a project and will be used to record project-related information during the approved-project phase of the project. **Important Note: Once entered, the comment cannot be edited or deleted.** The space can

be used to reference an important document, agreement or e-mail message that has been saved on the S drive (S:\DWR\HPD-2006\Misc*Region**Project Name*\…).

Enter Project Work Detail Tab

When all work has been completed on a project, press this tab to access one of four "Project Work Detail Forms" (WMA Maintenance Activity, Aquatic Project Activity, Terrestrial Project Activity, and Miscellaneous Activity). The form that appears will correspond to the project type that was selected in the "Proposal Form" portion of the database. Enter actual output data for all applicable fields. GBRC personnel will enter the "Seed Report File Name" and save the file in S:\DWR\HPD-2006\Seed Report*Project Name*\...after the seed is mixed and a report is prepared.

Change Status to Completed Tab

To be entered by SLO (password protected field).

APPENDIX F . 115 STAT. 414 PUBLIC LAW 107-63 – STATE WILDLIFE GRANTS

For wildlife conservation grants to States and to the District of Columbia, Puerto Rico, Guam, the United States Virgin Islands, the Northern Mariana Islands, American Samoa, and federally recognized Indian tribes under the provisions of the Fish and Wildlife Act of 1956 and the Fish and Wildlife Coordination Act, for the development and implementation of programs for the benefit of wildlife and their habitat, including species that are not hunted or fished, $85,000,000 to be derived from the Land and Water Conservation Fund, to remain available until expended, and to be for the conservation activities defined in Section 250(c)(4)(E) of the Balanced Budget and Emergency Deficit Control Act of 1985, as amended, for the purposes of such Act: Provided, That of the amount provided herein, $5,000,000 is for a competitive grant program for Indian tribes not subject to the remaining provisions of this appropriation: Provided further, That the Secretary shall, after deducting said $5,000,000 and administrative expenses apportion the amount provided herein in the following manner: (A) to the District of Columbia and to the Commonwealth of Puerto Rico, each a sum equal to not more than one-half of one percent thereof; and (B) to Guam, American Samoa the United States Virgin Islands, and the Commonwealth of the Northern Mariana Islands, each a sum equal to not more than one-fourth of 1 percent thereof: Provided further, That the Secretary shall apportion the remaining amount in the following manner: (A) one-third of which is based on the ratio to which the land area of such State bears the total land area of all such States; and (B) two-thirds of which is based on the ratio to which the population of such State bears to the total population of such States: Provided further, That the amounts apportioned under this paragraph shall be adjusted equitably so that no State shall be apportioned a sum which is less than 1 percent of the amount available under apportionment under this paragraph for any fiscal year or more than 5 percent of such amount: Provided further, That the Federal share of planning grants shall not exceed 75 percent of the total costs of such projects and the Federal share of implementation projects shall not exceed 50 percent of the total costs of such projects: Provided further, That the non-Federal share of such projects shall not be derived from Federal grant programs: Provided further: That no State, territory or other jurisdiction shall receive a grant unless it has developed or committed to develop by October 1, 2005, a comprehensive wildlife conservation plan, consistent with criteria established by the Secretary of the Interior, that considers the broad range of the State, territory, or other jurisdiction's wildlife and associated habitats, with appropriate priority placed on those species with greatest conservation need and taking into consideration the relative level of funding available for the conservation of these species: Provided further, That any amount apportioned in 2002 to any State, territory, or other jurisdiction that remains unobligated as of September 30, 2003, shall be reapportioned, together with funds appropriated in 2004, in the manner provided herein.

Of the amount appropriated in title VII of Public Law 106-291, $25,000,000 for State Wildlife Grants are rescinded.

NOTE: As of the passage of the above law, Utah's land area in square miles totaled 84,904 [according to the U.S. Statistical Abstract (Census Bureau) 1997], its population was 2,233,169 (as of April 1, 2001, U.S. Census Bureau) and the "anticipated apportionment for FY02 was $1,090,005.

APPENDIX G . R657-48. NATURAL RESOURCES, WILDLIFE RESOURCES

R657-48. Implementation of the Wildlife Species of Concern and Habitat Designation Advisory Committee.

R657-48-1. Authority and Purpose.

(1) Pursuant to Sections 23-14-19 and 63-34-5(2)(a) of the Utah Code, this rule:
(a) establishes the Wildlife Species of Concern and Habitat Designation Advisory Committee;
(b) defines its purpose and relationship to local, state and federal governments, the public, business, and industry functions of the state; and
(c) defines the procedure for:
(i) the designation of wildlife species of concern as part of a process to preclude listing under the ESA; and
(ii) review, identification and analysis of wildlife habitat designation and management recommendations relating to significant land use development projects.

R657-48-2. Definitions.

(1) The terms used in this rule are defined in Section 23-13-2.
(2) In addition:
(a) "Committee" means the Wildlife Species of Concern and Habitat Designation Advisory Committee.
(b) "Conservation species" means wildlife species or subspecies that have been identified as a species of concern and that are currently receiving special management under a conservation agreement developed or implemented by the state to preclude the need for listing under the ESA.
(c) "Department" means the Department of Natural Resources.
(d) "Division" means the Division of Wildlife Resources within the Department.
(e) "ESA" means the federal Endangered Species Act.
(f) "Executive Director" means Executive Director of the Department.
(g) "Habitat identification material" means maps, data, or documents prepared by the Division in the process of specifying wildlife habitat.
(h) "Management recommendations" means determinations of, amount of, level of intensity, timing of, any restrictions, conditions, mitigation, or allowances for activities proposed for a project area pursuant to this rule.
(i) "NEPA" means the National Environmental Policy Act as defined in 42 U.S.C. Section 4321-4347.
(j) "Interested Person" means an individual, firm, association, corporation, limited liability company, partnership, commercial or trade entity, any agency of the United States Government, the State of Utah, its departments, agencies and political subdivisions.
(k) "Project area" means the geographical area covered by a significant land use development.

(l) "Proposed wildlife habitat designation" means identified habitat in a project area undergoing review pursuant to this rule.
(m) "RDCC" means the Resource Development Coordinating Committee as provided in Section 63-28a-1.
(n) "Significant land use development" means an RDCC review item identified as such by the State Planning Coordinator, any projects or developments identified by the Executive Director, or as approved through petition as described in Section R657-48-5.
(o) "Wildlife habitat designation document" means the decision of the RDCC after following the provisions of this rule for wildlife habitat designation and management recommendations for a project area.
(p) "State sensitive species" means:
(i) species listed under the ESA now or previously present in Utah;
(ii) candidate species under the ESA now or previously present in Utah;
(iii) a state conservation species; or
(iv) a state wildlife species of concern.
(q) "Wildlife habitat designation" means the wildlife habitat identification within a project area issued pursuant to this rule.
(r) "Wildlife habitat identification" means the description, classification and assignment by the Division of any area of land or bodies of water as the habitat, range or area of use, seasonally, historically, currently, or prospectively of or by any species of game or non-game wildlife in the State of Utah.
(s) "Wildlife species of concern" means a wildlife group within the state of Utah for which there is credible scientific evidence to substantiate a threat to continued population viability.

R657-48-3. Department Responsibilities.
(1) There is established a Wildlife Species of Concern and Habitat Designation Advisory Committee within the Department of Natural Resources.
(2) The Department shall provide staff support, arrange meetings, keep minutes, and prepare and distribute final recommendations.

R657-48-4. Committee Membership and Procedure.
(1) Committee membership shall consist of:
(a) the Executive Director of the Department;
(b) the Director of the Division or a designee;
(c) the Director of the Division of Oil, Gas and Mining or a designee;
(d) the Director of the Division of Water Resources or a designee; and
(e) any other Department Division heads or designees as determined by the Executive Director of the Department.
(2) The Executive Director shall serve as chair.
(3) Three members, consisting of the Executive Director, the Director of the Division of Wildlife Resources and the Director of the Division of Oil, Gas & Mining, shall constitute a quorum for meetings of the Committee.
(4) The Committee shall meet as specified by the Executive Director.
(5) The following procedure shall be used for submitting review items to the Executive Director for inclusion on the Committee agenda:

(a) the Division Director shall submit for committee review all proposed designations or re-designations of each wildlife species of concern; and
(b) the Division Director shall submit for committee review any proposed or existing wildlife habitat designation and corresponding management recommendations within a project area.

(i) The Division shall support its proposals for wildlife species of concern designations, wildlife habitat designation and management recommendations with:
(A) studies, investigations and research supporting the need for the designation and the potential impacts of each proposal;
(B) field survey and observation data; and
(C) federal, state, local and academic information on habitat, historical distribution, and other data or information collected in accordance with generally accepted scientific techniques and practices.
(6) Species at the edge of their range or with limited distribution may be included for evaluation.
(7) The Department will provide an analysis of potential impacts of the proposed designations and the existing social and economic needs of the affected communities and interests.

R657-48-5. Public Participation and Setting of Meeting Agenda.

(1) An interested person may petition the Executive Director for a hearing before the Committee to designate a project as a significant land use development for purposes of this rule.
(2) The Executive Director shall act to approve or disapprove a petition or extension request within 14 days.
(3)(a) The agenda shall consist of items determined by the Executive Director, and copies shall be sent to Committee members and other interested persons as requested.
(b) Requests to receive notices and agendas must be submitted in writing to the Executive Director's Office as provided in Subsection R657-48-9(1).
(4) Any interested person may:
(a) submit comments on proposed species of concern and wildlife habitat designations;
(i) submissions must be submitted in writing to the Executive Director for review and must be submitted at least seven days prior to the meeting;
(b) request an extension of up to 30 days to review a proposed Committee action; or
(c) request to make an oral presentation before the Committee.
(i) An interested person seeking to make a presentation before the Committee concerning any matter under review, must submit a written request and supporting documentation to the Executive Director at least 14 days prior to the meeting.

R657-48-6. Committee Review Actions.

(1) In conducting a review of issues, the Committee may:
(a) require additional information from the Division, the Department or interested persons;

(b) require the Division or interested persons to make presentations before the Committee or provide additional documentation in support or opposition of the recommendation;
(c) schedule additional meetings where public interest or agency concern merits additional discussion;
(d) undertake additional review functions as needed; or
(e) consider the need for involvement of other persons or agencies, or whether other action may be needed.
(2) Following the Committee's review and recommendation, the Executive Director shall:
(a) make a final determination and recommend the approval of proposed wildlife species of concern designations to the Wildlife Board; or
(b) in the case of proposed wildlife habitat designation, recommend wildlife habitat designations and proposed management recommendations to the RDCC.
(3) The Executive Director's decision will be announced at that meeting, or the next formal meeting, on the proposed species of concern or habitat designation, unless an alternative time is required by federal or state law, or rule.

R657-48-7. Wildlife Species of Concern Designation Process.

(1) A wildlife species of concern designation shall be made only after the Executive Director, following consideration of the Committee's recommendations, has made a formal written recommendation to the Wildlife Board, and after that Board has considered:
(a) the Executive Director's recommendation, and all comments on such recommendation; and
(b) all data, testimony and other documentation presented to the Committee and the Wildlife Board pertaining to such proposed designation.
(2) All wildlife species of concern designations shall be made:
(a) pursuant to the procedures specified in this rule; and
(b) as an independent public rulemaking pursuant to the Administrative Rulemaking Act, Title 63, Chapter 46(a) of the Utah Code.
(3) With the proposed rule and any amendments for a wildlife species of concern, the accompanying analysis shall include either a species status or habitat assessment statement, a statement of the habitat needs and threats for the species, the anticipated costs and savings to land owners, businesses, and affected counties, and the inclusion of the rationale for the proposed designation.
(4) The Wildlife Board may approve, deny or remand the proposed wildlife species of concern designation to the Executive Director.
(5) Until a rule designating a wildlife species of concern is finalized, the proposed rule may not be used or relied upon by any governmental agency, interested person, or entity as an official or unofficial statement of the state of Utah.
(6) The Division shall maintain all data collected and other information relied upon in developing proposed species of concern designations as part of the administrative record and make such information available, subject to the Government Records Access and Management Act as defined in Section 62-2-101, for public review and copying upon request.

R657-48-8. Wildlife Habitat Designations and Management Recommendations.

(1) Wildlife habitat designations and management recommendations for project areas will be made pursuant to the procedures specified by this rule.

(2) Any Department or Division map, identification of habitat, document or other material that is provided or released to, or used by any persons, including federal agencies, which includes wildlife habitat designations that have been adopted under this rule will so indicate.

(3) A proposed wildlife habitat designation and management recommendation shall be adopted by RDCC only after the Executive Director, following consideration of the Committee's recommendations, has made a formal written recommendation to RDCC and the RDCC has considered:

(a) the Executive Director's recommendation and all comments on such recommendation; and

(b) all data, testimony and other documentation presented to the Committee pertaining to such proposed designation.

(4) RDCC shall act on the proposal pursuant to its rules.

(5) If rejected or remanded for modification to the Executive Director by RDCC, the Executive Director may make the recommended modifications, conduct a further review of the proposed wildlife habitat designation, or withdraw the proposed wildlife habitat designation from further consideration.

(6) Until a final determination on a proposed wildlife habitat and management recommendation has been made by the Executive Director and adopted by RDCC, the proposed wildlife habitat or management recommendations may not be used or relied upon by any other governmental agency, interested person, or entity as an official or unofficial statement of the state of Utah.

(7) A Wildlife Habitat Designation document developed for the purpose of this rule, having completed the RDCC process, shall be attached to the wildlife habitat identification materials and made available for public review or copying upon request.

(8) The Division shall maintain all data collected and other information relied upon in developing proposed wildlife habitat designations and management recommendations as part of the administrative record, and make this information available in accordance with the Government Records Access and Management Act as defined in Section 62-2-101, for public review and copying upon request.

R657-48-9. Distribution.

(1) The Division shall send by mail or electronic means a copy of a proposed species of concern designation or wildlife habitat and management determination established under this rule to the following:

(a) any person who has requested in writing that the division provide notice of any proposed species of concern designations or proposed wildlife habitat and management recommendations under this rule; and

(b) county commissions and tribal governments, which have jurisdiction over lands that are covered by a proposed wildlife habitat designation and management recommendation and of lands inhabited by a species proposed to be designated as a species of concern under this rule.

(2) Species of concern designations, wildlife habitat designations or management recommendations may not be used by governmental entities as a basis to involuntarily restrict the private property rights of landowners and their lessees or permittees.

KEY: species of concern*, habitat designation* **23-14-19**
June 13, 2001 **63-34-5(2)(a)**

APPENDIX H . AUTHORITY OF THE UTAH DIVISION OF WILDLIFE RESOURCES

23-13-1. Short title - "Wildlife Resources Code of Utah."

This act shall be known and may be cited as the "Wildlife Resources Code of Utah."

History: C. 1953, 23-13-1, enacted by L. 1971, ch. 46, § 1.

Meaning of "this act". - The phrase "this act," as used in this section, means L. 1971, ch. 46, which repealed Chapters 1 to 12 and enacted Chapters 13 to 21 and 22 of this title.

Legislative intent. - Laws 1994, ch. 208, which amended §§ 23-13-3 and 23-20-25, provides in § 3: "The Legislature finds that wildlife is pervasively regulated for management and preservation and that the standards articulated in this title are necessary to protect this resource."

COLLATERAL REFERENCES

Am. Jur. 2d. - 35A Am. Jur. 2d Fish, Game, and Wildlife Preservation § 35 et seq.

C.J.S. - 36A C.J.S. Fish § 1 et seq.; 38 C.J.S. Game § 1 et seq.

23-13-2. Definitions.

As used in this title:

(1) "Activity regulated under this title" means any act, attempted act, or activity prohibited or regulated under any provision of Title 23 or the rules, and proclamations promulgated thereunder pertaining to protected wildlife including:

(a) fishing;

(b) hunting;

(c) trapping;

(d) taking;

(e) permitting any dog, falcon, or other domesticated animal to take;

(f) transporting;

(g) possessing;

(h) selling;

(i) wasting;

(j) importing;

(k) exporting;

(l) rearing;

(m) keeping;

(n) utilizing as a commercial venture; and

(o) releasing to the wild.

(2) "Aquatic animal" has the meaning provided in Section 4-37-103.

(3) "Aquatic wildlife" means species of fish, mollusks, crustaceans, aquatic insects, or amphibians.

(4) "Aquaculture facility" has the meaning provided in Section 4-37-103.

(5) "Bag limit" means the maximum limit, in number or amount, of protected wildlife that one person may legally take during one day.

(6) "Big game" means species of hoofed protected wildlife.

(7) "Carcass" means the dead body of an animal or its parts.

(8) "Certificate of registration" means a document issued under this title, or any rule or proclamation of the Wildlife Board granting authority to engage in activities not covered by a license, permit, or tag.

(9) "Closed season" means the period of time during which the taking of protected wildlife is prohibited.

(10) "Conservation officer" means a full-time, permanent employee of the Division of Wildlife Resources who is POST certified as a peace or a special function officer.

(11) "Dedicated hunter program" means a program that provides:

(a) expanded hunting opportunities;

(b) opportunities to participate in projects that are beneficial to wildlife; and

(c) education in hunter ethics and wildlife management principles.

(12) "Division" means the Division of Wildlife Resources.

(13) (a) "Domicile" means the place:

(i) where an individual has a fixed permanent home and principal establishment;

(ii) to which the individual if absent, intends to return; and

(iii) in which the individual, and the individual's family voluntarily reside, not for a special or temporary purpose, but with the intention of making a permanent home.

(b) To create a new domicile an individual must:

(i) abandon the old domicile; and

(ii) be able to prove that a new domicile has been established.

(14) "Endangered" means wildlife designated as such pursuant to Section 3 of the federal Endangered Species Act of 1973.

(15) "Fee fishing facility" has the meaning provided in Section 4-37-103.

(16) "Feral" means an animal which is normally domesticated but has reverted to the wild.

(17) "Fishing" means to take fish or crayfish by any means.

(18) "Furbearer" means species of the Bassariscidae, Canidae, Felidae, Mustelidae, and Castoridae families, except coyote and cougar.

(19) "Game" means wildlife normally pursued, caught, or taken by sporting means for human use.

(20) (a) "Guide" means a person who receives compensation or advertises services for assisting another person to take protected wildlife.

(b) Assistance under Subsection (20)(a) includes the provision of food, shelter, or transportation, or any combination of these.

(21) "Guide's agent" means a person who is employed by a guide to assist another person to take protected wildlife.

(22) "Hunting" means to take or pursue a reptile, amphibian, bird, or mammal by any means.

(23) "Intimidate or harass" means to physically interfere with or impede, hinder, or diminish the efforts of an officer in the performance of the officer's duty.

(24) "Nonresident" means a person who does not qualify as a resident.

(25) "Open season" means the period of time during which protected wildlife may be legally taken.

(26) "Pecuniary gain" means the acquisition of money or something of monetary value.

(27) "Permit" means a document, including a stamp, which grants authority to engage in specified activities under this title or a rule or proclamation of the Wildlife Board.

(28) "Person" means an individual, association, partnership, government agency, corporation, or an agent of the foregoing.

(29) "Possession" means actual or constructive possession.

(30) "Possession limit" means the number of bag limits one individual may legally possess.

(31) (a) "Private fish installation" means a body of water where privately owned, protected aquatic wildlife are propagated or kept.

(b) "Private fish installation" does not include any aquaculture facility or fee fishing facility.

(32) "Private wildlife farm" means an enclosed place where privately owned birds or furbearers are propagated or kept and which restricts the birds or furbearers from:

(a) commingling with wild birds or furbearers; and

(b) escaping into the wild.

(33) "Proclamation" means the publication used to convey a statute, rule, policy, or pertinent information as it relates to wildlife.

(34) (a) "Protected aquatic wildlife" means aquatic wildlife as defined in Subsection (3), except as provided in Subsection (34)(b).

(b) "Protected aquatic wildlife" does not include aquatic insects.

(35) (a) "Protected wildlife" means wildlife as defined in Subsection (49), except as provided in Subsection (35)(b).

(b) "Protected wildlife" does not include coyote, field mouse, gopher, ground squirrel, jack rabbit, muskrat, and raccoon.

(36) "Released to the wild" means to be turned loose from confinement.

(37) (a) "Resident" means a person who:

(i) has been domiciled in the state of Utah for six consecutive months immediately preceding the purchase of a license; and

(ii) does not claim residency for hunting, fishing, or trapping in any other state or country.

(b) A Utah resident retains Utah residency if that person leaves this state:

(i) to serve in the armed forces of the United States or for religious or educational purposes; and

(ii) complies with Subsection (37)(a)(ii).

(c) (i) A member of the armed forces of the United States and dependents are residents for the purposes of this chapter as of the date the member reports for duty under assigned orders in the state if the member:

(A) is not on temporary duty in this state; and

(B) complies with Subsection (37)(a)(ii).

(ii) A copy of the assignment orders must be presented to a wildlife division office to verify the member's qualification as a resident.

(d) A nonresident attending an institution of higher learning in this state as a full-time student may qualify as a resident for purposes of this chapter if the student:

(i) has been present in this state for 60 consecutive days immediately preceding the purchase of the license; and

(ii) complies with Subsection (37)(a)(ii).

(e) A Utah resident license is invalid if a resident license for hunting, fishing, or trapping is purchased in any other state or country.

(f) An absentee landowner paying property tax on land in Utah does not qualify as a resident.

(38) "Sell" means to offer or possess for sale, barter, exchange, or trade, or the act of selling, bartering, exchanging, or trading.

(39) "Small game" means species of protected wildlife:

(a) commonly pursued for sporting purposes; and

(b) not classified as big game, aquatic wildlife, or furbearers and excluding cougar and bear.

(40) "Spoiled" means impairment of the flesh of wildlife which renders it unfit for human consumption.

(41) "Spotlighting" means throwing or casting the rays of any spotlight, headlight, or other artificial light on any highway or in any field, woodland, or forest while having in possession a weapon by which protected wildlife may be killed.

(42) "Tag" means a card, label, or other identification device issued for attachment to the carcass of protected wildlife.

(43) "Take" means to:

(a) hunt, pursue, harass, catch, capture, possess, angle, seine, trap, or kill any protected wildlife; or

(b) attempt any action referred to in Subsection (43)(a).

(44) "Threatened" means wildlife designated as such pursuant to Section 3 of the federal Endangered Species Act of 1973.

(45) "Trapping" means taking protected wildlife with a trapping device.

(46) "Trophy animal" means an animal described as follows:

(a) deer - any buck with an outside antler measurement of 24 inches or greater;

(b) elk - any bull with six points on at least one side;

(c) bighorn, desert, or rocky mountain sheep - any ram with a curl exceeding half curl;

(d) moose - any bull;

(e) mountain goat - any male or female;

(f) pronghorn antelope - any buck with horns exceeding 14 inches; or

(g) bison - any bull.

(47) "Waste" means to abandon protected wildlife or to allow protected wildlife to spoil or to be used in a manner not normally associated with its beneficial use.

(48) "Water pollution" means the introduction of matter or thermal energy to waters within this state which:

(a) exceeds state water quality standards; or

(b) could be harmful to protected wildlife.

(49) "Wildlife" means:

(a) crustaceans, including brine shrimp and crayfish;

(b) mollusks; and

(c) vertebrate animals living in nature, except feral animals.

History: C. 1953, 23-13-2, enacted by L. 1971, ch. 46, § 2; 1973, ch. 33, § 1; 1975, ch. 60, § 1; 1977, ch. 102, § 1; 1979, ch. 90, § 1; 1981, ch. 112, § 1; 1981, ch. 115, § 1; 1983, ch. 123, § 1; 1986, ch. 76, § 1; 1991, ch. 5, § 31; 1991, ch. 212, § 1; 1992, ch. 27, § 1; 1993, ch. 234, § 15; 1993, ch. 307, § 1; 1994, ch. 153, § 29; 1994, ch. 208, § 1; 1995, ch. 211, § 1; 1996, ch. 265, § 1; 1999, ch. 209, § 1; 2000, ch. 44, § 1; 2000, ch. 195, § 1; 2001, ch. 9, § 49.

Administrative Rules. - This section is implemented by, interpreted by, or cited as authority for the following administrative rule(s): R657-26, R657-33.

Amendment Notes. - The 1999 amendment, effective July 1, 1999, deleted former Subsection (23), defining "license," and redesignated the subsequent subsections accordingly; in Subsection (26) deleted "secondary" before "document," deleted Subsection (26)(a) which read "requires a license as a prerequisite to its issuance," and made related changes; and added "and excluding cougar and bear" to the end of Subsection (38).

The 2000 amendment by ch. 44, effective May 1, 2000, updated the first internal reference in Subsection (34)(a) and made stylistic changes to the internal references throughout the section.

The 2000 amendment by ch. 195, effective January 1, 2001, added Subsection (11), redesignating the remaining subsections accordingly and making related reference changes throughout.

The 2001 amendment, effective April 30, 2001, substituted "be turned loose" for "turn loose" in Subsection (36).

Federal Law. - Section 3 of the federal Endangered Species Act of 1973, cited in Subsections (14) and (44), which defines "endangered species" and "threatened species," is codified as 16 USCS § 1532.

NOTES TO DECISIONS

State waters.

"Waters of this state" meant waters of public streams of state or water flowing in natural channels. State v. California Packing Corp., 105 Utah 182, 141 P.2d 386 (1943), rehearing denied, 105 Utah 191, 145 P.2d 784 (1944) (decided under former similar provisions).

COLLATERAL REFERENCES

C.J.S. - 36A C.J.S. Fish § 1; 38 C.J.S. Game, Conservation and Preservation of Wildlife § 2.

23-13-3. Wildlife declared property of the state.

All wildlife existing within this state, not held by private ownership and legally acquired, is the property of the state.

History: C. 1953, 23-13-3, enacted by L. 1971, ch. 46, § 3; 1992, ch. 27, § 2.

Administrative Rules. - This section is implemented by, interpreted by, or cited as authority for the following administrative rule(s): R657-19.

COLLATERAL REFERENCES

Am. Jur. 2d. - 35A Am. Jur. 2d Fish, Game, and Wildlife Preservation § 35 et seq.

C.J.S. - 36A C.J.S. Fish § 2; 38 C.J.S. Game, Conservation and Preservation of Wildlife §

23-14-1. Division of Wildlife Resources - Creation - General powers and duties - Limits on authority of political subdivisions.

(1) (a) There is created the Division of Wildlife Resources within the Department of Natural Resources under the administration and general supervision of the executive director of the Department of Natural Resources.

(b) The Division of Wildlife Resources is the wildlife authority for Utah and is vested with the functions, powers, duties, rights, and responsibilities provided in this title and other law.

(2) (a) Subject to the broad policymaking authority of the Wildlife Board, the Division of Wildlife Resources shall protect, propagate, manage, conserve, and distribute protected wildlife throughout the state.

(b) The Division of Wildlife Resources is appointed as the trustee and custodian of protected wildlife and may initiate civil proceedings, in addition to criminal proceedings provided for in this title, to:

(i) recover damages;

(ii) compel performance;

(iii) compel substitution;

(iv) restrain or enjoin;

(v) initiate any other appropriate action; and

(vi) seek any appropriate remedies in its capacity as trustee and custodian.

(3) (a) If a political subdivision of the state adopts ordinances or regulations concerning hunting, fishing, or trapping that conflict with this title or rules promulgated pursuant to this title, state law shall prevail.

(b) Communities may close areas to hunting for safety reasons after confirmation by the Wildlife Board.

History: C. 1953, 23-14-1, enacted by L. 1971, ch. 46, § 13; 1983, ch. 124, § 1; 1988, ch. 169, § 11; 1995, ch. 211, § 3.

Administrative Rules. - This section is implemented by, interpreted by, or cited as authority for the following administrative rule(s): R657-26, R657-34.

Cross-References. - Creation of Department of Natural Resources and boards and divisions within department, § 63-34-3.

NOTES TO DECISIONS

Analysis

Publicwaters. Cited.

Public waters.

Former title relating to fish and game which, inter alia, created fish and game commission held to confine its provisions to public waters so far as fish or fish waters were concerned. State v. California Packing Corp., 105 Utah 182, 141 P.2d 386 (1943), rehearing denied, 105 Utah 191, 145 P.2d 784 (1944).

Cited in Gadd ex rel. Gadd v. United States, 971 F. Supp. 502 (D. Utah 1997); Crisman v. Hallows, 2000 UT App 104, 999 P.2d 1249.

COLLATERAL REFERENCES

Am. Jur. 2d. - 35A Am. Jur. 2d Fish, Game, and Wildlife Preservation § 35 et seq.

C.J.S. - 36A C.J.S. Fish §§ 26, 37; 38 C.J.S. Game, Conservation and Preservation of Wildlife § 45 et seq.

APPENDIX I . 23-14-2. WILDLIFE BOARD

(1) There is created a Wildlife Board which shall consist of seven members appointed by the governor with the consent of the Senate.

(2) (a) The members of the board shall have expertise or experience in at least one of the following areas:

(i) wildlife management or biology;

(ii) habitat management, including range or aquatic;

(iii) business, including knowledge of private land issues; and

(iv) economics, including knowledge of recreational wildlife uses.

(b) Each of the areas of expertise under Subsection (2)(a) shall be represented by at least one member of the Wildlife Board.

(3) (a) The governor shall select each board member from a list of nominees submitted by the nominating committee pursuant to Section 23-14-2.5.

(b) No more than two members shall be from a single wildlife region described in Subsection 23-14-2.6(1).

(c) The governor may request an additional list of at least two nominees from the nominating committee if the initial list of nominees for a given position is unacceptable.

(d) (i) If the governor fails to appoint a board member within 60 days after receipt of the initial or additional list, the nominating committee shall make an interim appointment by majority vote.

(ii) The interim board member shall serve until the matter is resolved by the committee and the governor or until the board member is replaced pursuant to this chapter.

(4) (a) Except as required by Subsection (4)(b), as terms of current board members expire, the governor shall appoint each new member or reappointed member to a six-year term.

(b) Notwithstanding the requirements of Subsection (4)(a), the governor shall, at the time of appointment or reappointment, adjust the length of terms to ensure that:

(i) the terms of board members are staggered so that approximately 1/3 of the board is appointed every two years; and

(ii) members serving from the same region have staggered terms.

(c) If a vacancy occurs, the nominating committee shall submit two names, as provided in Subsection 23-14-2.5(4), to the governor and the governor shall appoint a replacement for the unexpired term.

(d) Board members may serve only one term unless:

(i) the member is among the first board members appointed to serve four years or less; or

(ii) the member filled a vacancy under Subsection (4)(c) for four years or less.

(5) (a) The board shall elect a chair and a vice chair from its membership.

(b) Four members of the board shall constitute a quorum.

(c) The director of the Division of Wildlife Resources shall act as secretary to the board but shall not be a voting member of the board.

(6) (a) The Wildlife Board shall hold a sufficient number of public meetings each year to expeditiously conduct its business.

(b) Meetings may be called by the chair upon five days notice or upon shorter notice in emergency situations.

(c) Meetings may be held at the Salt Lake City office of the Division of Wildlife Resources or elsewhere as determined by the Wildlife Board.

(7) (a) (i) Members who are not government employees shall receive no compensation or benefits for their services, but may receive per diem and expenses incurred in the performance of the member's official duties at the rates established by the Division of Finance under Sections 63A-3-106 and 63A-3-107.

(ii) Members may decline to receive per diem and expenses for their service.

(b) (i) State government officer and employee members who do not receive salary, per diem, or expenses from their agency for their service may receive per diem and expenses incurred in the performance of their official duties from the board at the rates established by the Division of Finance under Sections 63A-3-106 and 63A-3-107.

(ii) State government officer and employee members may decline to receive per diem and expenses for their service.

(8) (a) The members of the Wildlife Board shall complete an orientation course to assist them in the performance of the duties of their office.

(b) The Department of Natural Resources shall provide the course required under Subsection (8)(a).

History: C. 1953, 23-14-2, enacted by L. 1995, ch. 211, § 4; 1996, ch. 243, § 57; 1997, ch. 276, § 6; 2002, ch. 176, § 26.

Repeals and Reenactments. - Laws 1995, ch. 211, § 4 repeals former § 23-14-2, as last amended by Laws 1983, ch. 320, § 7, creating a Wildlife Board, and enacts the present section, effective May 1, 1995.

Amendment Notes. - The 2002 amendment, effective May 6, 2002, inserted "with the consent of the Senate" in Subsection (1) and deleted former Subsection (3)(e) which read: "Each appointment shall be confirmed by the Senate" and made technical corrections.

APPENDIX J . 23-14-2.6. REGIONAL ADVISORY COUNCILS

(1) There are created five regional advisory councils which shall consist of 12 to 15 members each from the wildlife region whose boundaries are established for administrative purposes by the division.

(2) The members shall include individuals who represent the following groups and interests:

(a) agriculture;

(b) sportsmen;

(c) nonconsumptive wildlife;

(d) locally elected public officials;

(e) federal land agencies; and

(f) the public at large.

(3) The executive director of the Department of Natural Resources, in consultation with the director of the Division of Wildlife Resources, shall select the members from a list of nominees submitted by the respective interest group or agency.

(4) The councils shall:

(a) hear broad input, including recommendations, biological data, and information regarding the effects of wildlife;

(b) gather information from staff, the public, and government agencies; and

(c) make recommendations to the Wildlife Board in an advisory capacity.

(5) (a) Except as required by Subsection (b), each member shall serve a four-year term.

(b) Notwithstanding the requirements of Subsection (a), the executive director shall, at the time of appointment or reappointment, adjust the length of terms to ensure that the terms of council members are staggered so that approximately half of the council is appointed every two years.

(6) When a vacancy occurs in the membership for any reason, the replacement shall be appointed for the unexpired term.

(7) The councils shall determine:

(a) the time and place of meetings; and

(b) any other procedural matter not specified in this chapter.

(8) Members of the councils shall complete an orientation course as provided in Subsection 23-14-2(8).

(9) (a) (i) Members who are not government employees shall receive no compensation or benefits for their services, but may receive per diem and expenses incurred in the performance of the member's official duties at the rates established by the Division of Finance under Sections 63A-3-106 and 63A-3-107.

(ii) Members may decline to receive per diem and expenses for their service.

(b) (i) State government officer and employee members who do not receive salary, per diem, or expenses from their agency for their service may receive per diem and expenses incurred in the performance of their official duties from the council at the rates established by the Division of Finance under Sections 63A-3-106 and 63A-3-107.

(ii) State government officer and employee members may decline to receive per diem and expenses for their service.

(c) (i) Local government members who do not receive salary, per diem, or expenses from the entity that they represent for their service may receive per diem and expenses incurred in the performance of their official duties at the rates established by the Division of Finance under Sections 63A-3-106 and 63A-3-107.

(ii) Local government members may decline to receive per diem and expenses for their service.

History: C. 1953, 23-14-2.6, enacted by L. 1995, ch. 211, § 6; 1996, ch. 243, § 58; 1997, ch. 276, § 7.

Administrative Rules. - This section is implemented by, interpreted by, or cited as authority for the following administrative rule(s): R657-39.

R657. Natural Resources, Wildlife Resources.
R657-39. Regional Advisory Councils.
R657-39-1. Purpose and Authority.

This rule is established under the authority of Sections 23-14-2.6(7) and 23-14-19 to provide the standards and procedures for the operation of regional advisory councils.

R657-39-2. Definitions.

(1) Terms used in this rule are defined in Section 23-13-2.

R657-39-3. Memberships -- Terms of Office.

(1)(a) There are created five regional advisory councils which shall consist of at least 12 members and not more than 15 members each from the wildlife region whose boundaries are established for administrative purposes by the division.

(b) Regional advisory councils shall be established as follows:

(i) two members who represent agriculture;

(ii) two members who represent sportsman;

(iii) two members who represent nonconsumptive wildlife;

(iv) one member who represents locally elected public officials;

(v) one member who represents the U.S. Forest Service;

(vi) one member who represents the Bureau of Land Management;

(vii) one member who represents Native Americans where appropriate; and

(viii) two members of the public at large who represent the interests of the region.

(c) The executive director of the Department of Natural Resources, in consultation with the director of the Division of Wildlife Resources, shall appoint additional members to the councils, up to a total of 15 per region, if deemed necessary to provide adequate representation of local interests and needs.

(d) Members of the councils shall serve a term of four years, except members may be appointed for a term of two years to ensure that the terms of office are staggered.

(e) Members may serve no more than two terms, except:

(i) members representing Native Americans may serve unlimited terms;

(ii) members filling a vacancy under Subsection (3) for two years or less will not be credited with having served a term; and

(iii) members who have served two terms may be eligible to serve an additional two terms after four years absence from regional advisory council membership.

(f) Members= terms expire on July 1 of the final year in the appointed term.

(2) The executive director of the Department of Natural Resources, in consultation with the director of the Division of Wildlife Resources, may remove members of the councils from office for cause, but may not do so without a public hearing if requested by the member.

(3) If a vacancy occurs, the executive director of the Department of Natural Resources, in consultation with the director of the Division of Wildlife Resources, shall appoint a replacement to serve the remainder of the term from a list of nominees submitted by the respective interest group, agency, or the public at large.

(4)(a) Each council shall appoint:

(i) a chair to conduct meetings and present council recommendations to the Wildlife Board; and

(ii) a vice chair to conduct meetings in the absence of the chair.

(b) The chair and vice chair shall serve for a two year term of office.

(5) Regional supervisors of the division shall serve as executive secretary to the councils and shall provide administrative support.

(6) Each new member shall attend an orientation course provided by the division to assist them in the performance of the duties of the their office.

(7) Any member who fails to attend two consecutive, previously scheduled meetings without contacting the chair shall be considered to have resigned and shall be replaced as provided in this section.

R657-39-4. Meetings.

(1) Meeting dates and times may be proposed by the Division of Wildlife Resources, but shall be determined by the chair upon at least ten days notice or upon shorter notice in emergency situations.

(2) Meeting locations may be proposed by the Division of Wildlife Resources, but shall be determined by the chair and must be held within the council=s regional boundary.

(3) Meetings shall be conducted in accordance with Robert=s Rules of Order.

(4)(a) Each council shall provide not less than 24 hours= public notice of the agenda, date, time, and place of each of its meetings.

(b) Public notice is satisfied by:

(i) posting written notice at the regional division office; and

(ii) providing notice to at least one newspaper of general circulation within the geographic jurisdiction of the council, or to a local media correspondent.

(c) When because of unforeseen circumstances it is necessary for a council to consider matters of an emergency or urgent nature, the notice requirements in this section may be disregarded and the best notice practicable given. No such meeting shall be held unless an attempt has been made to notify all of its members and a majority votes in the affirmative to hold the meeting.

(5) No formal decisions or recommendations may be made at any meeting unless there is a quorum present consisting of a simple majority of the membership of the council.

(6) Written minutes shall be kept of all council meetings pursuant to Section 52-4-7. Such minutes shall include:

(a) the date, time and place of the meeting;

(b) the names of members present and absent;

(c) the substance of all matters proposed, discussed, or decided, and a record, by individual member, of votes taken;

(d) the names of all citizens who appeared and the substance in brief of their testimony;

(e) any other information that any member requests be entered into the minutes.

(7)(a) All council meetings shall be open to the public except that a council may hold a closed meeting as authorized in Utah Code Sections 52-4-4 and 52-4-5.

(b) A record of all closed meetings shall be kept and maintained consistent with Utah Code Section 52-4-7.5.

R657-39-5. Recommendations.

(1) Each council shall:

(a) hear broad input, including recommendations, biological data, and information regarding the effects of wildlife;

(b) gather information from staff, the public, and government agencies; and

(c) make recommendations to the Wildlife Board in an advisory capacity.

(2) The chair of each council or his or her designee shall submit a written recommendation to the Wildlife Board and present its recommendations orally to the Wildlife Board during an open public meeting.

(3) Councils may not make formal recommendations to the Wildlife Board concerning the internal policies and procedures of the division, personnel matters, or expenditure of the division=s budget.

KEY: terms of office, public meetings, regional advisory councils*
June 3, 2003 **23-14-2.6(7)**
Notice of Continuation February 15, 2001 **23-14-19**

APPENDIX K . UTAH CODE ANNOTATED 63-34-14 (ENDANGERED SPECIES MITIGATION FUND).

Species Protection Account.

(1) As used in this section, "species protection" means an action to protect any plant or animal species identified as sensitive by the state or as threatened or endangered under the Endangered Species Act of 1973, U.S.C. 16 Sec. 1531 et seq.

(2) There is created within the General Fund a restricted account known as the Species Protection Account.

(3) The account shall consist of:

(a) revenue generated by the brine shrimp tax provided for in Title 59, Chapter 23, Brine Shrimp Royalty Act; and

(b) interest earned on monies in the account.

(4) Monies in the account may be appropriated by the Legislature for the following purposes:

(a) to develop and implement species status assessments and species protection measures;

(b) to obtain biological opinions of proposed species protection measures;

(c) to conduct studies, investigations, and research into the effects of proposed species protection measures;

(d) to verify species protection proposals that are not based on valid biological data;

(e) for Great Salt Lake wetlands mitigation projects in connection with the western transportation corridor;

(f) to pay for the state's voluntary contributions to the Utah Reclamation Mitigation and Conservation Account under the Central Utah Project Completion Act, Pub. L. No. 102-575, titles II-VI, 106 stat. 4605-4655; and

(g) to pay for expenses of the State Tax Commission under Title 59, Chapter 23, Brine Shrimp Royalty Act.

(5) The purposes specified in Subsections (4)(a) through (4)(d) may be accomplished by the state or, in an appropriation act, the Legislature may authorize the Department of Natural Resources to award grants to political subdivisions of the state to accomplish those purposes.

(6) Monies in the account may not be used to develop or implement a habitat conservation plan required under federal law unless the federal government pays for at least 1/3 of the habitat conservation plan costs.

History: C. 1953, 63-34-13, enacted by L. 1997, ch. 179, § 11; recompiled as § 63-34-14.

Compiler's Notes. - This section was enacted as § 63-34-13; it was renumbered by the Office of Legislative Research and General Counsel because of the enactment of another section with the same number.

Effective Dates. - Laws 1997, ch. 179 became effective on May 5, 1997, pursuant to Utah Const., Art. VI, Sec. 25.

APPENDIX L . STAKEHOLDERS TO APPROACH

Possibly Affected Organization/Agency Contact

Government Agencies.—

SOVEREIGN NATIONS

Ute Tribe Fish & Game Dept.
Karen Corts or Jaimie Cuch
901 South 6500 East, PO Box 190
Ft. Duchesne, UT 84026
(Karen Phone) 435-722-5511
(e-mail) kcorts@ubtanet.com
(Jaimie Phone) 435-722-5511 X412

FEDERAL

U.S.D.A. Forest Service
Forest Supervisors
Region 4 Integrated Resource Workshop
Clint McCarthy, cmccarthy01@fs.fed.us
Ogden District

U.S.D.A. Natural Resources Conservation Service
Sylvia Gillen, State Conservationist
Wallace F. Bennett Federal Building
125 South State Street, Room 4402
Salt Lake City, UT 84138-1100
E-mail: Sylvia.Gillen@ut.usda.gov
(phone) 801-524-4550
(fax) 801-524-4403

U.S. Army
Steve Plunkett, Wildlife Biologist
Environmental Programs – Natural Resources
Commander of the U.S. Army, Dugway Proving Ground
CSTE-DTC-DP-EP-CP (Attn: Steve Plunkett), Dugway, UT 84022-50000
E-mail: plunkett@dpg.army.mil
Phone: 435 831-3576
Fax 435 831-3563

U.S. Air Force
Marcus Blood, OALC Hill AFB EMNR
OO-ALC/EMP 7274 Wardleigh Road
Hill AFB, UT 84056
E-mail: Marcus.Blood@HILL.af.mil

Phone: 801 777-4618

U.S. Bureau of Reclamation - Upper Colorado Region
Rick Gold, Regional Director
125 South State Street, Room 6107
Salt Lake City, UT 84138-1102
www.usbr.gov/uc/
phone: 801-524-3600
fax: 801- 524-5499

USFWS
Bear River Migratory Bird Refuge
Al Trout, Refuge Manager
58 South 950 West
Brigham City UT 84302
Phone: 435.723.5887
bearriver@fws.gov

STATE

Governor's Office for Planning and Budget
Suite 210 of the Utah State Capitol Complex,
East Office Building, Suite E210, P.O. Box 142210
Salt Lake City, Utah 84114-2210;
Telephone 801 538-1027; Fax 801 538-1547
http://governor.utah.gov/planning/default.htm
Mike Hansen, Director of Planning
mhansen1@utah.gov

Utah Reclamation Mitigation and Conservation Commission
102 West 500 South #315
Salt Lake City, UT 84101
Phone: 801 524-3146
E-mail: urmcc@uc.usbr.gov
Michael Weland, Executive Director
mweland@uc.usbr.gov

Utah Department of Environmental Quality
Walt Baker, Acting Executive Director
168 North, 1950 West
Salt Lake City, UT 84114-4810
Phone: (801) 538-6088

Utah Dept of Agriculture and Food
K. N. "Jake" Jacobson
Soil Conservation Program Specialist

Marketing & Conservation Division
UT Dept of Agriculture and Food
US Mail, Box 146500, SLC 84114-6500
Office Phone: (801) 538-7171; USDA VoiceCom:
1-888-617-2401 #3055; Fax: (801) 538-4940;
or Email: JakeJacobson@utah.gov

Utah Department of Transportation (UDOT)
Paul West, Environmental Services
Wildlife Program Manager
Office Phone: 965-4672;
E-mail: PAULWEST@utah.gov

Utah School and Institutional Trust Lands Administration
675 East 500 South, Suite 500
Salt Lake City, UT 84102
801-538-5100
801-355-0922 fax
Kim Christy
Assistant Director, Surface Lands
(801) 538-5183

Utah's Quality Growth Commission
Dan Lofgren, Chair
Shauna Kerr, Vice Chair

Utah Travel Council
c/o Council Hall
300 North State
Salt Lake City, UT 84114
801-538-1900
Stacey Clark, Strategic Plan Coordinator; 801-538-1373
Margaret Godfrey, Interagency Cooperative Program Coordinator; 801-538-1479
Dave Williams; Research & Website Development - 801-538-1317

REGIONAL

Uintah Basin Association of Governments
Laurie Brummand
152 E 100 N, Vernal, Utah
Phone: 435 722-4518

South Eastern Utah Association of Governments
Bill Howell
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Wasatch Front Regional Council (Counties: Davis, Morgan, Salt Lake, Tooele, Weber)

Regional Growth Committee, Mayor David Connors, Chair
295 North Jimmy Doolittle Road
Salt Lake City, Utah 84116
www.wfrc.org
801 363-4250
George Ramjoue, WFRC Staff contact
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gramjoue@wfrc.org

Utah Association of Counties
Brent Gardner, Ex. Director (Mark Walsh gone)
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Murray, UT 84107
Phone: (801) 265-1331
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bgardner@uacnet.org

Utah Association of Conservation Districts
1860 North 100 East
Logan Utah 84341-1784
(435) 753-6029, #8
Fax: (435) 755-2117

Utah Resource Conservation & Development Councils
Nels Werner, Phone: 435 686-2590
Email: Nelswerner@mindspring.com

Utah Water Users Workshop
Utah Water Users Board of Directors;
Chair, Bob Hill, USU Irrigation Specialist
Eric Millis, Div Water Resources: 538-7298

Utah Soil Conservation Commission
Jake Jacobsen, Staff, UT Dept. of Ag & Food

Utah League of Cities and Towns
50 South 600 East, Suite 150, Salt Lake City, Utah 84102
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Toll free (800) 852-8528
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Meg Ryan, Planner
mryan@ulct.org

NONGOVERNMENTAL ORGANIZATIONS

Envision Utah
Ted Knowlton, Planning Manager
303-1458
tknowlton@cuf-envision.org

Utah Watershed Coordinators Council
Jeff Salt
Email: jeffsalt@greatsaltlakekeeper.org
801-485-2550

Southern Utah Wilderness Association
1471 South 1100 East
Salt Lake City, UT 84105
(801) 486-3161
Bob Brister, Outreach Coordinator / Steve Bloch, Executive Director
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bob@suwa.org

Utah Chapter American Planning Association
Chuck Klingenstein, President
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PO Box 680097
Park City, UT 84068
435-649-1057 voice
435-649-3368fax
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Hawk Watch International
1800 S. West Temple, Suite 226, Salt Lake City, UT 84115
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Sherry Meyer, Conservation Scientist
Thom Benedict Education Director, (801) 484-6808, x111
tbenedict@hawkwatch.org

Boulder Regional Group
PO Box ***1365 or 1455*** ???
Boulder, UT 84716
(435) 335-7477
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Julian Hatch

Lynne Mitchell

Wild Utah Project
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Western Wildlife Conservancy
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Utah Environmental Congress
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E-mail uec@aros.net

Rocky Mountain Elk Foundation
Bill Christensen, Regional Director
3277 W. 11880 S.
Riverton, UT 84065
(phone) 801-254-1922
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(e-mail) bcrmef@aros.net

Sportsmen for Fish & Wildlife
Don Peay
4477 Sunset Circle
Bountiful, UT 84010-5885
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(e-mail) don@sfwsfh.org

APPENDIX M . PRIVATE LANDOWNER PARTNERSHIP PROGRAM

Utah Landowner Incentive Program

http://www.wildlife.utah.gov/habitat/landowners/

DWR announces signup for landowner incentive program

- Utah landowner incentive program
- Application form — (PDF format)

SALT LAKE CITY – The Division of Wildlife Resources is accepting applications from landowners to participate in a new program that will improve habitat conditions for sensitive wildlife species on their property. Applications for the Landowner Incentive Program (LIP) will be accepted through April 30, 2004.
The LIP is a voluntary program that provides technical and financial assistance, including habitat protection and restoration, to private landowners for the protection and management of habitat to benefit federally listed, proposed, candidate or other at-risk species on private lands.

The Division of Wildlife Resources (DWR) has identified two main focus areas for the LIP in Utah:

1. Sagebrush steppe uplands supporting populations of greater sage-grouse, Gunnison sage-grouse, Columbian sharp-tailed grouse, other at-risk neotropical migratory bird species, pygmy rabbit, Utah prairie-dog, white-tailed prairie-dog, or Gunnison's prairie-dog; and

2. Low-to-mid elevation riparian corridors and associated wetlands supporting Columbia spotted frog, least chub, Bonneville cutthroat trout, Colorado River cutthroat trout, native populations of Yellowstone cutthroat trout, and yellow-billed cuckoo, Southwestern willow flycatcher or other at-risk neotropical migratory bird species.

Habitat restoration practices will include: mechanical treatment and seeding of decadent sagebrush stands; fuel breaks to control the spread of wildfires; stream channel restoration; and riparian plantings. The LIP also provides for the acquisition of conservation easements, from willing sellers, to protect habitats in key areas.

Applications received after April 30, 2004 will be held and considered for funding during the second round of review, if funds are still available.

For more information, landowners should contact the regional habitat manager at the nearest DWR regional office or their local Natural Resources Conservation Service office or USDA Service Center.

Utah Landowner Incentive Program

1.0 OVERVIEW

The Utah Habitat Conservation Initiative will bring together state and federal financial resources, along with technical assistance from the Division of Wildlife Resources (Division), partnering agencies and conservation organizations, and participating landowners to implement a habitat conservation program that benefits threatened, endangered, and at-risk species on private lands.

2.0 BACKGROUND AND NEED

2.1 Habitats and associated species-at-risk in Utah

Habitat conversion, habitat fragmentation, and land and water use practices are significant contributing factors to the decline of wildlife species in Utah. To track the changing status of wildlife species in Utah, the Division has prepared a publication, the Utah Sensitive Species List, which includes ESA-listed species (endangered, threatened, or candidate species), conservation agreement species, and "species of concern" that were identified by accessing the Heritage Program resources through the Utah Conservation Data Center and augmenting it with other data sources such as the Partners In Flight — Utah Avian Conservation Strategy. The Division is in the process of drafting its Comprehensive Wildlife Conservation Strategy (CWCS) to remain eligible for State Wildlife Grants. The Utah Sensitive Species List will serve as the basis for the CWCS, which will establish the foundation for all conservation actions needed to protect sensitive species, grouped into three tiers as follows: Tier I — federally designated species, Tier II — state designated species (State Species of Concern), and Tier III — state species of conservation need:

Tier I species: federally designated species, including endangered, threatened, candidate, and proposed species, as well as "Conservation Species" covered through a multiparty conservation agreement.

Tier II species: state designated "Species of Concern" including all those species that are so selected through the Utah Wildlife Species of Concern and Habitat Designation Advisory Committee and approved by the Utah Wildlife Board.

Tier III species: state designated species that are one or more of the following – a specie for which there are insufficient data to establish population status, a species that serves as an indicator of habitat in jeopardy, a species that has had a substantive decline in populations, or a species that warrants specific conservation attention due to risks/threats present.

Although a variety of habitats are critical to the survival of these species, the Division has identified two main focus areas for its Habitat Conservation Initiative. The areas include lands that are privately owned, provide important habitats for a variety of Tier I, II & III species, and are expected to rank high among the conservation priority areas yet to be identified in Utah's CWCS. The focus areas include:

1. Sagebrush steppe uplands supporting populations of Greater Sage-grouse (Centrocercus urophasianus), Gunnison Sage-grouse *(Centrocercus minimus),* Columbian Sharp-tailed Grouse *(Tympanuchus phasianellus columbianus),* other at-risk neotropical migratory bird species, pygmy rabbit *(Brachylagus idahoensis),* Utah prairie-dog *(Cynomys parvidens),* white-tailed prairie-dog *(Cynomys leucurus),* or Gunnison's prairie-dog *(Cynomys gunnisoni);* and

2. Low-to-mid elevation riparian corridors and associated wetlands supporting Columbia spotted frog *(Rana luteiventris),* least chub *(Iotichthys phlegethontis),* Bonneville cutthroat trout *(Oncorhynchus clarki utah),* Colorado River cutthroat trout *(Oncorhynchus clarki pleuriticus),* native populations of Yellowstone cutthrout trout *(Oncorhynchus clarki bouvieri),* Yellow-billed Cuckoo *(Coccyzus americanus),* Southwestern Willow Flycatcher *(Empidonax traillii extimus),* or other at-risk neotropical migratory bird species.

Conservation activities on private lands in these two focus areas are expected to benefit at least 69 of the 196 species on the CWCS species list, or 35% of the total.

2.1 a. Sagebrush steppe habitat

Conversion of sagebrush to agricultural cropland, herbicide treatments, overgrazing by livestock and big game, and fire suppression have significantly altered the distribution of sagebrush communities and habitat conditions statewide. The Division, in cooperation with the Utah State Department of Agriculture and Food, Bureau of Land Management, and U. S. Forest Service maintains a range trend monitoring program that documents vegetation composition changes on over 750 permanent study sites on private and public land statewide. The program was initiated in 1981, and over the last 15 years, significant changes have been observed in low-mid elevation (4,500–6,500 ft.) sagebrush communities. Sites are characterized by dense stands of old, decadent shrubs, significant amounts of bare ground, few native grasses and forbs, and an understory that has become dominated by cheatgrass and other invasive weeds. In the fifth year of a significant drought, sagebrush stands in eastern Utah are experiencing significant mortality on a landscape scale. In August 2003, an interagency assessment team identified sagebrush mortality on approximately 600,000 acres in the Uinta Basin and southeastern Utah.

2.1 b. Riparian Habitat

In the West, riparian habitat covers less than 1% of the land, yet the role of riparian habitat in the landscape is substantial. Within Utah, 66–75% of all bird species use riparian habitats during some portion of their life history. Typically, diversity and abundance of birds dramatically increases in western riparian habitat compared with other habitat types, and numerous avian species are now considered as riparian obligates.
Few low-mid elevation streams in Utah can be classified as fully-functional waterways. Most are restricted in their natural migration across former floodplains by transportation corridors involving roads, railways or both. Shortened streams lack the ability to absorb the energy of high flows, and suffer from downcutting and excessive bank erosion. Early attempts at "flood control" used heavy equipment to sever the connection between stream channels and floodplains,

eliminating the opportunity for natural maintenance of riparian zones with periodic flood events. Some streams are impacted by watersheds that fail to trap, store and slowly release water as groundwater, but release it as runoff that causes erosion in upland areas, causing additional sediment transport in streams and excessive stream bank erosion. Some of these watersheds have been placed on the State's Section 303(d) (Clean Water Act) list of impaired watersheds, making them eligible for federal funding. All of the water in streams has been fully appropriated by the State for a variety of beneficial uses, and diversions regularly dewater some streams, and significantly reduce flows in others. Unless properly managed, livestock concentrate in riparian areas, overgraze vegetation and impact water quality. Wetlands associated with riparian areas are impacted by permitted fill or drainage projects, and water quality in rural areas can be affected by agricultural practices such as grazing and chemical treatments (herbicide and fertilizer applications).

3.0 OBJECTIVES

The overall objective is to implement a program to provide technical and financial assistance to landowners to protect habitat for at-risk species on private lands located in focus areas throughout the state with $2,480,000 in initial funding through Utah's Habitat Conservation Initiative. This will be accomplished by providing funding for at least 15 projects with private landowners by May 31, 2004 as detailed below.

3.1 Sagebrush steppe habitat

- Finalize agreements to protect and restore 3,500 acres of sagebrush steppe habitat in Box Elder, Cache and Rich counties and implement habitat restoration projects associated with these agreements by November 30, 2004 to benefit Greater Sage-grouse and/or Columbian Sharp-tailed grouse.
  &bnsp;
- Finalize agreements to protect and restore an additional 3,500 acres of sagebrush steppe habitat statewide by June 30, 2004 and implement habitat restoration projects associated with these agreements by November 30, 2004 to benefit Greater Sage-grouse.
  &bnsp;
- Finalize agreements to protect and manage 1,500 acres of sagebrush steppe habitat in San Juan County by April 30, 2005 to benefit Gunnison Sage-grouse.
  &bnsp;
- Conduct pre and post-treatment surveys in project areas to evaluate impacts to sensitive species.

3.2 Riparian habitat

- Finalize agreements to protect 175 acres of riparian/wetland habitat by April 30, 2005 to benefit Columbia spotted frog and/or Least chub.
- Finalize agreements to protect and restore 2.75 miles of low-mid elevation riparian corridors (50 acres total, average width of 100 feet) that provide habitat for native cutthroat trout or breeding habitat for Southwestern Willow Flycatcher, Yellow-billed Cuckoo or other neotropical migratory bird species on the Utah State Sensitive Species

List by April 30, 2005, and implement habitat restoration projects associated with these agreements by November 30, 2005.
- Conduct pre and post-treatment surveys in project areas to evaluate impacts to sensitive species.

3.3 Sagebrush steppe habitat conservation activities

Conservation activities in this focus area will be guided by specific actions identified in the Utah Strategic Management Plan for Sage Grouse (and subsequent sage grouse conservation plans prepared by local working groups), the Utah Avian Conservation Strategy (Partners In Flight), and the Coordinated Implementation Plan for Bird Conservation in Utah (Intermountain West Joint Venture - Utah State Steering Committee) described above in

Background and Need

3.3 a. Greater Sage Grouse, Columbian Sharp-tailed Grouse, and Gunnison Sage Grouse

Habitat restoration, accompanied by management agreements, based on sound resource conservation plans, will be the standard approach used for conserving Greater Sage-grouse habitat on private land. Resource conservation plans will be prepared with each landowner that protect and restore wildlife habitat while maintaining economically viable ranching operations. The Division will elicit the assistance of the USDA Natural Resources Conservation Service, Utah Association of Conservation Districts, and local non-profit organizations such as the Utah Grazingland Network and Association for Quality Resource Management to work with landowners to develop and implement sustainable grazing systems as part of the plan. Conservation easements, in conjunction with habitat restoration, will be important tools for protecting and restoring important Gunnison Sage-grouse habitat within the core conservation area identified in San Juan County.

3.3 b. Other Sensitive Species

Division biologists will participate in planning habitat restoration projects that benefit other at-risk species in the focus areas, such as pygmy rabbit, sage thrasher, sage sparrow and Brewer's sparrow. Pre and post-treatment surveys will be conducted in project areas to evaluate impacts to sensitive species.

3.4 Riparian habitat conservation activities

For "conservation agreement" species, riparian/wetland habitat conservation activities will be guided by goals and objectives identified in the conservation agreement and strategy documents for Columbia spotted frog, least chub, Bonneville cutthroat trout, and Colorado River cutthroat trout. Riparian conservation efforts on behalf of the other priority species will be guided by the Utah Division of Wildlife Resources Strategic Plan: 1998–2003, the Partners In Flight Utah Avian Conservation Strategy, the Coordinated Implementation Plan for Bird Conservation in Utah, prepared by the Intermountain West Joint Venture State Committee (draft only), and when completed, the Division's Comprehensive Wildlife Conservation Strategy.

3.4 a. Columbia Spotted Frog

The "Conservation Agreement and Strategy for Columbia Spotted Frog" identifies the threats to existing populations in Utah and conservation objectives for the species. Spotted frog populations in Utah have been separated into three geographic management units (Wasatch Front, Sevier River, and West Desert), and technical teams have prepared habitat management plans that describe detailed strategies for protecting occupied habitats within each management unit. Proposed actions include securing perpetual conservation easements, modifying habitats (vegetation enhancement, securing water levels, dredging spring heads to create open water to increase breeding and larval habitat), restricting grazing during the breeding season and monitoring effectiveness of habitat renovations.

3.4 b. Least Chub

The "Conservation Agreement and Strategy for Least Chub" (Revised April 2003) identifies bank stabilization, riparian/spring fencing, sustainable grazing practices, maintaining and restoring natural hydrologic characteristics and water quality where possible, protecting habitats with conservation easements or other regulatory mechanisms (*e.g.,* memorandums of understanding) and monitoring effectiveness of habitat conservation actions as high priority conservation measures.

3.4 c. Native Cutthroat Trout (Bonneville, Colorado River, Yellowstone), Southwestern Willow Flycatcher, Yellow-billed Cuckoo, and Other Sensitive Neotropical Migratory Bird Species

The Division will secure needed stream flows, water storage, and deed-associated protection for wildlife habitat in priority riparian areas through the acquisition of easements (perpetual and term) and leases. Division aquatic biologists with training in fluvial geomorphology will work with landowners to plan and implement stream restoration projects that reestablish functional floodplains, and increase species and structural diversity in broadened riparian zones. Migration barriers will be installed where necessary to isolate native trout from non-native species. Fencing may be required to isolate streams from adjacent pastures.

4.0 LIP PROJECT COSTS

Sagebrush steppe habitat conservation

Habitat Restoration (7,000 acres)	
Seed @ $40/acre	$280,000
Seedbed preparation and seeding contract @ $20/acre	$140,000
Transport of seed and range seeding equipment @ $5/acre	$35,000
NEPA compliance (includes archaeological survey) @ $35/acre	$245,000
Pre and post-treatment monitoring @ $5/acre	$35,000
Conservation easements (1,500 acres) @ $250	$375,000
Subtotal	$1,110,000

Riparian habitat conservation

Spotted Frog/Least Chub Conservation Easements — 175 acres @ $2,000	$350,000
Riparian Habitat Conservation Easements — 50 acres @ $9,500	$475,000
Stream/Riparian Habitat Restoration – 2.75 miles @ $100,000 30%: Division heavy equipment crew personal services ($90,000) 5%: Division crew travel and per diem ($15,000) 40%: Heavy equipment rental ($120,000) 10%: NEPA compliance (includes Archaeological survey) ($30,000) 15%: Materials (root wads and boulders) ($45,000)	$275,000
Pre and post-treatment monitoring (easements and restoration)	$30,000
Subtotal	$1,130,000

Total = $2,240,000 ($1,120,000 in federal funds plus $1,120,000 in matching funds)

APPENDIX N . UPCD JOINT RESOLUTION

THE UTAH PARTNERS FOR CONSERVATION AND DEVELOPMENT

JOINT RESOLUTION

REGARDING THE NEED FOR INCREASED EFFORTS IN MANAGEMENT AND RESTORATION OF SHRUB-STEPPE AND GREAT BASIN SAGEBRUSH ECOSYSTEMS

The Utah Partners for Conservation and Development understanding the threat of ecological conversion of the shrub-steppe and Great Basin sagebrush ecosystems (hereafter referred to as shrub-steppe rangelands) by noxious weeds and other invasive species, have agreed to the following resolution to recognize the severity of Utah's shrub-steppe rangeland condition and to commit to cooperating in order to develop a common shared vision, improve communication and cooperation among partner members and stakeholders, leverage technical and financial resources and develop innovative approaches to problem solving.

Be it resolved by the Utah Partners for Conservation and Development:

WHEREAS, although the federal and state land managing agencies and private grazing land managers have historically coordinated and carried out rangeland restoration activities in Utah, the effort has not kept pace with dynamic changes that are occurring on public and private lands within the shrub-steppe ecosystems;

WHEREAS, many of the productive shrub-steppe rangelands have been replaced by cheatgrass (*Bromus tectorum*) or dense stands of pinyon-juniper woodland;

WHEREAS, many of Utah's livestock enterprises, and wildlife species of conservation concern, particularly those listed or petitioned for listing under the Endangered Species Act (ESA,) are dependent on healthy shrub-steppe ranges for their survival;

WHEREAS, noxious weeds and invasive annual grasses are pervasive on many of these shrub-steppe ranges, setting the stage for an unalterable increase in the frequency of fire and the subsequent loss of productive rangelands for livestock and wildlife;

WHEREAS, vast areas within these ecosystems no longer function to provide healthy watersheds, diverse wildlife habitats and/or productive grazing lands;

WHEREAS, healthy rangelands are essential in reducing sediment and other pollutant loading to waters of the state;

WHEREAS, watersheds dominated by noxious weeds, other invasive species and closed-canopied, pinyon-juniper woodlands lack sufficient herbaceous plant cover to protect soil health and trap, store and slowly release water to springs, streams, lakes and reservoirs;

WHEREAS, prolonged drought has contributed to more than 600,000 acres of sagebrush-steppe die-off and has the potential to cause long-term effects to ecosystems and economies;

WHEREAS, natural recovery is no longer possible in many areas due to loss of seed reserves in the soil, and the introduction of noxious weeds and other invasive species;

WHEREAS, a well-planned, long-term restoration and management program is necessary to prevent the large-scale conversion of diverse, productive rangelands to non-desirable plant species or dense stands of pinyon-juniper woodlands, depending on the fire regime;

WHEREAS, rangeland health is a unifying goal that cuts across all economic, social and political boundaries and is important to the quality of life for all in Utah:

NOW, THEREFORE, BE IT RESOLVED that the Utah Partners for Conservation and Development will work together and take cooperative action as partners with federal, state and local agencies, tribal governments, non-governmental organizations, private livestock operations and other affected private landowners, communities, and stakeholders to define a common vision and goals for these rangelands; coordinate and leverage technical and financial resources; set priorities for management and restoration; strengthen efforts for monitoring and assessment; develop innovative approaches to problem solving; and develop and implement outreach and educational efforts.

BE IT FURTHER RESOLVED that a copy of this resolution be sent to partner members' field offices, county commissions, non-governmental and private livestock agricultural oriented organizations involved in conservation efforts in Utah and members of Utah's congressional delegation.

PARTNER SIGNATURES